

Kramer Electronics, Ltd.



Kramer K-Config Guide Revision 6

Software Version 1.0.3.x

Intended for Kramer Technical Personnel or External System Integrators.

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1 Introduction

Welcome to Kramer Electronics! Since 1981, Kramer Electronics has been providing a world of unique, creative, and affordable solutions to the vast range of problems that confront the video, audio, presentation, and broadcasting professional on a daily basis. In recent years, we have redesigned and upgraded most of our line, making the best even better! Our 1,000-plus different models now appear in 11 groups¹ that are clearly defined by function.

Congratulations on purchasing your Kramer room controller device, which is ideal for controlling A/V equipment and media room items. The configuration software is part of the package and includes the Kramer **K-Config** Guide². The Kramer **K-Config** software lets you set a sequence of actions in a trigger (a macro) and assign them to any of the configurable buttons on any of the relevant RC devices, a schedule or an event.

The RC buttons can be configured prior to installation

1.1 Applicable Room Controllers

The **K-Config** Software is used to configure several types of room controllers³ in a room control system, and applies to the Master Room Controllers⁴ (Master RC), Auxiliary (Aux) devices and standalone devices as defined in [Table 1](#):

Table 1: Applicable Room Controllers

Unit	Used as Master RC	Used as K-Net AUX device	Used as Standalone Room Controller
SV-552	✓		
SV-551	✓		
SL-1	✓	✓	✓
SL-10	✓	✓	✓
SL-12	✓	✓	✓
SL-14RC/N	✓		When no Aux K-NET devices are defined for this unit in the control room tree, the K-NET port will remain compatible with the RC-3TB/RC-3TBU button extensions inserts.
RC-74DL	✓	✓	✓
RC-63/RC-62 Series	✓	✓	✓
RC-53 series		✓	
RC-54DL		✓	
RC-13TC	✓	✓	✓
Virtual Device		✓	
WP-500			✓
WP-501			✓
RC-2			✓
RC-2C			✓
RC-52/N/A			✓
RC-5B2, RC-5B4		✓	
RC-3TB/U		See note 1	
VP-31KSi		✓	
VP-81KSi	Can be used for limited automatic control over the display device		
FC-29	Used only for learning IR commands from IR RC		

Note 1: Can extend **SL-14RC** only, when no other K-Net AUX devices are connected

1 GROUP 1: Distribution Amplifiers; GROUP 2: Switchers and Routers; GROUP 3: Control Systems; GROUP 4: Format/Standards Converters; GROUP 5: Range Extenders and Repeaters; GROUP 6: Specialty AV Products; GROUP 7: Scan Converters and Scalers; GROUP 8: Cables and Connectors; GROUP 9: Room Connectivity; GROUP 10: Accessories and Rack Adapters; GROUP 11: Sierra Products

2 Download up-to-date Kramer user manuals and guides from the Internet at this URL: <http://www.kramerelectronics.com>

3 For each Kramer machine, the installation process is described in a separate user manual. You can download the up-to-date Kramer user manuals and guides at: <http://www.kramerelectronics.com>

4 Defined as Masters in Master-Auxiliary Device setups

1.2 Available Commands for Room Control Ports

Since each Room Controller includes different ports¹, you will find that not all the available commands apply to your room controller.

[Table 2](#) defines the sections that apply to each room controller:

Table 2: Room Controller Commands Available

Machine	IR OUT 6.11.1	RS-232 6.11.1	RS-485 6.11.1	Ethernet 6.11.1	GPI/O 6.8	Relay 6.11.2	Switcher 6.11.6	Power Amplifier 6.11.7	LCD Label 6.11.5	Button Light 6.11.3
RC-2		✓								
RC-2C	✓	✓								✓
RC-52	✓	✓								
RC-52N/A	✓	✓								
SV-551	✓	✓	✓	✓		✓	✓	✓	See note 1	See note 1
SV-552	✓	✓	✓	✓		✓	✓	✓	See note 1	See note 1
SL-1	✓	✓		✓		✓			See note 1	See note 1
RC-6x	✓	✓				✓				✓
RC-6xL	✓	✓				✓			✓	✓
SL-14RC/N	✓	✓		✓	✓	✓			See note 1	✓
RC-74DL	✓	✓	✓	✓	✓	✓			✓	✓
RC-53D									✓	✓
RC-53DLC									✓	✓
RC-54DL									✓	✓
RC-5B2, RC-5B4										✓
RC-3TB/U										See note 3
RC-13TC	✓		✓						✓	✓
WP-500	✓	✓		✓						
WP-501	✓	✓		✓		✓				
VP-31KSI		✓								
VP-81KSI		✓								
SL-12	✓	✓	✓	✓	✓	✓			See note 1	See note 1
SL-10	✓	✓	✓	✓	✓	✓			See note 1	See note 1
Virtual Device										

Machine	Ignore Button 6.11.4	Panel Lock 6.11.8	Delay 6.11.12	Timer Start/Stop 6.11.9	States 6.11.11	LEDs Light 6.11.10
RC-2			✓	✓		
RC-2C		✓	✓	✓		
RC-52		✓	✓	✓		
RC-52N/A		✓	✓	✓		
SV-551	See note 1	See note 1	✓	✓	See note 1	See note 1
SV-552	See note 1	See note 1	✓	✓	See note 1	See note 1
SL-1	See note 1	See note 1	✓	✓	See note 1	See note 1
RC-6x	✓	✓	✓	✓	✓	
RC-6xL	✓	✓	✓	✓	✓	See note 2
SL-14RC/N	✓	✓	✓	✓	✓	
RC-74DL	✓	✓	✓	✓	✓	✓
RC-53D	✓	✓	✓	✓	✓	✓
RC-53DLC	✓	✓	✓	✓	✓	✓
RC-54DL	✓	✓			✓	✓
RC-5B2, RC-5B4	✓	✓			✓	
RC-3TB/U						
RC-13TC	✓	✓	✓	✓	✓	✓
WP-500		✓	✓	✓	✓	
WP-501		✓	✓	✓	✓	
VP-31KSI			✓	✓		
VP-81KSI			✓	✓		
SL-12	See note 1	See note 1	✓	✓	See note 1	See note 1
SL-10	See note 1	See note 1	✓	✓	See note 1	See note 1
Virtual Device			✓	✓	✓	

Note 1: This command can be available, depending on the auxiliary device connected to the Master room controller

Note 2: Only for digital models (for example, the **RC-63DL**)

Note 3: The device mimics the button light commands of **SL-14RC**

¹ For example, the RC-2 includes only an RS-232 port, so the other commands are not available for this machine

1.3 Trigger Types Available

[Table 3](#) lists the types of triggers that can be used for each room controller. [Section 6](#) describes K-Config triggers in detail.

Table 3: Available Triggers for Room Controllers

Unit	Device Startup	All Off / All On (from Site-CTRL)	Device Inactivity	Custom (from Web page or scheduled)	Buttons	Knob Up / Down	Scheduler	Monitor Serial Input	GPI/O
RC-2					✓				
RC-2C					✓				
RC-52	✓		✓	✓	✓		✓		
RC-52N/A	✓		✓	✓	✓		✓		
SV-551	✓	✓	✓	✓	See note 1	See note 1	✓	✓	
SV-552	✓	✓	✓	✓	See note 1	See note 1	✓	✓	
SL-1	✓	✓	✓	✓	See note 1	See note 1	✓	✓	See note 4
RC-6x	✓		✓	✓	✓		✓	✓	
RC-6xL	✓		✓	✓	✓	✓	✓	✓	
SL-14RC/N	✓	✓	✓	✓	✓	✓	✓	✓	See note 4
RC-74DL	✓	✓	✓	✓	✓	✓	✓	✓	See note 4
RC-53D					✓	✓			
RC-53DLC					✓	✓			
RC-54DL					✓	✓			
RC-5B2, RC-5B4					✓				
RC-3TB/U					See note 5				
RC-13TC	✓	✓	✓	✓	✓		✓	✓	
WP-500	✓	✓	✓	✓	✓		✓	✓	
WP-501	✓	✓	✓	✓	✓		✓	✓	
VP-31KSI	See note 2		See note 3						
VP-81KSI	See note 2		See note 3						
SL-12	✓	✓	✓	✓	See note 1	See note 1	✓	✓	See note 4
SL-10	✓	✓	✓	✓	See note 1	See note 1	✓	✓	See note 4

Note 1: This command can be available, depending on the auxiliary device connected to the Master room controller

Note 2: In the VP-81KSI, this trigger is activated when the first PC Graphics signal is detected on any one of its 8-input channels

Note 3: In the VP-81KSI, this trigger is activated when there is no active PC Graphics signal on any of its 8-input channels for a user defined period of time

Note 4: Available only if defined as a Master room controller

Note 5: The device mimics the button triggers of **SL-14RC**

1.4 Actions, Labels and Button Number Limits

[Table 4](#) lists the limit to the number of actions you can add to an action list as well as the number of buttons and labels in a Virtual Device when it is assigned to a specific Master RC:

Table 4: Room Controller Devices Limitation

Device	Maximum Actions in each Action List	Maximum Number of Aux Device		Maximum Number of Buttons in each Virtual Device when Unit is used as Master RC	Maximum number of labels in Master RC + Aux Devices (Kramer Aux and Virtual Devices defined)
		Kramer Devices	Virtual Devices		
RC-2	4	–	–	–	–
RC-2C	8	–	–	–	–
RC-52	8	–	–	–	–
RC-52N/A	8	–	–	–	–
SV-551	See note 1	2	1	32	10
SV-552	See note 1	4	2	64 (32 per virtual device)	40
SL-1	See note 1	2	1	32	10
RC-6x	See note 1	2	–	–	6
SL-14RC/N	See note 1	2	1	32	10
RC-74DL	See note 1	4	2	64 (32 per virtual device)	40
RC-53D	See note 1	–	–	–	–
RC-53DLC	See note 1	–	–	–	–
RC-54DL	See note 1				
RC-5B2, RC-5B4	See note 1				
RC-3TB/U	See note 1				
RC-13TC	See note 1	2	–	–	6
WP-500	See note 1	–	–	–	–
WP-501	See note 1	–	–	–	–
VP-31KSI					
VP-81KSI	8	–	–	–	–
SL-12	See note 1	4	2	64 (32 per virtual device)	40
SL-10	See note 1	4	2	64 (32 per virtual device)	40

Note 1: The number of actions is not limited by the software. Note that adding a large number of actions may slow the device response.

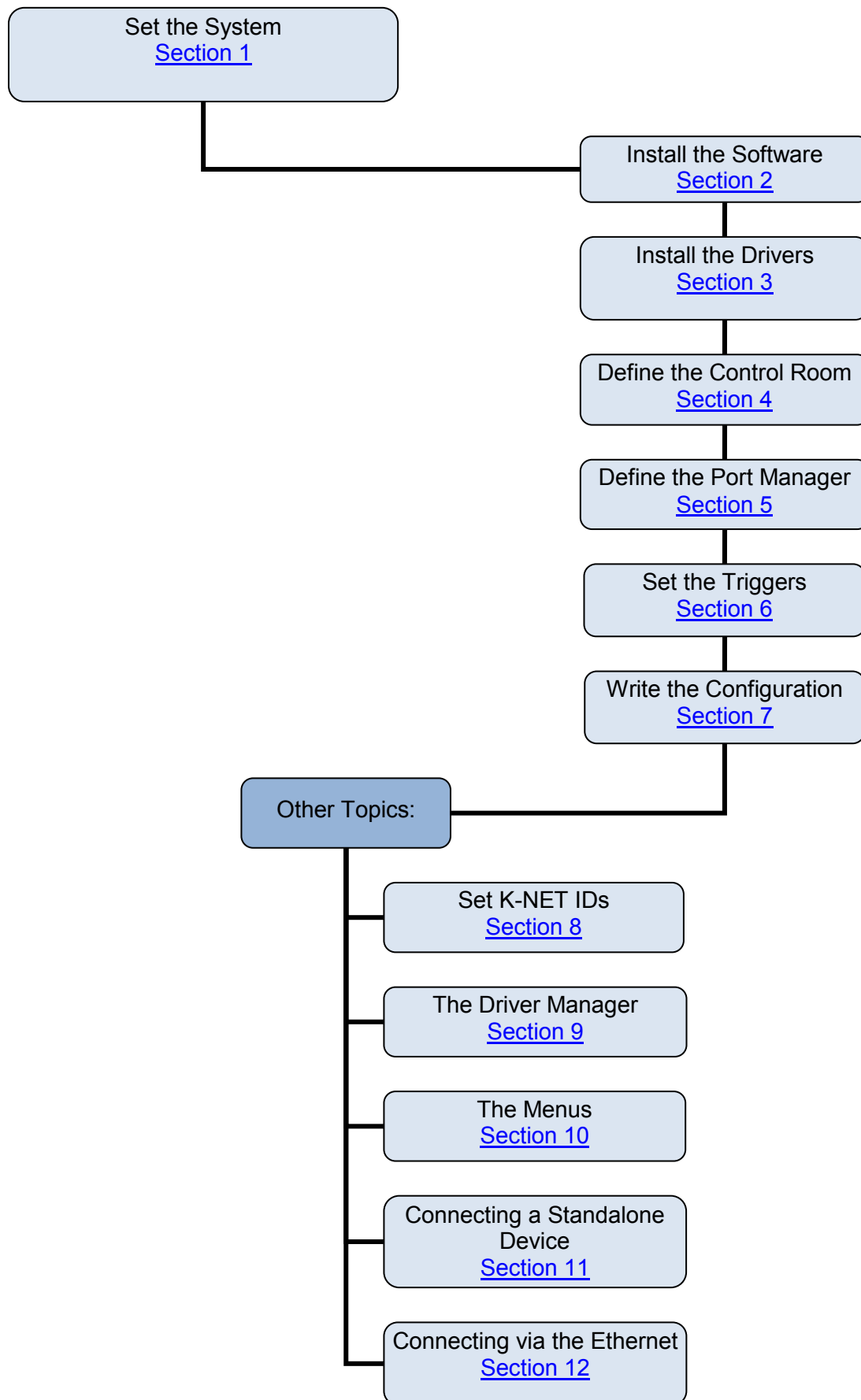
1.5 How to Save a Project

When saving, writing or opening a new project, follow these important rules:

- In order to make uploading the project as stable as possible, projects are saved automatically before writing a configuration to a device. This behavior may overwrite the existing project.
If you want to keep the previous configuration as well, be sure to rename the project before writing it to the device
- Always change a project name via “Save as” in the software. If the project name is changed outside the K-Config software (for example, via the Rename function in a Windows folder view), it will not open correctly in K-Config
- When quitting K-Config, the open project will not be saved automatically. If needed, save the open project before quitting K-Config
- When opening a new project, you will be asked to name it by saving it. The default project name that appears in the “Save as” window will be the name of the currently open Project. It is recommended to change the name of the filename, otherwise the new project will overwrite the current project

1.6 Quick Start

To configure your Room Controller, follow these basic steps:



1.7 Initial Planning

Carefully plan your RC system layout to ensure a smooth and easy configuration and installation (refer to the separate user manuals¹), by:

- Defining your requirements
- Listing the peripheral devices and room items that will be included in the system
- Planning the location of each device
- Planning the function of each device

Make a detailed list of the functions and commands required of the system devices, for example:

Media room components list		
Device	Functions	Commands Used
Blinds (relay)	Shut out External lighting	Open Close
Projector (RS-232)	Show presentation	Turn on Turn off Change Inputs Focus
VCR (IR-1)	Play Video	Play Stop Pause Rewind

Figure 1: Media Room Components List

Once this list is finalized and approved, you can proceed with the configuration and installation process.

Note that you can create a configuration file for a certain control setup without connecting the relevant Master or room controller to your PC²

1.8 Glossary

The glossary in [Table 5](#) defines common terms used throughout this manual:

Table 5: Glossary

Action:	A command that performs an action (for example, Mute the sound on the power amplifier). Actions are grouped into Action Types based on their function (for example, Button Light)
Action Types:	Select an Action Type from the list to display its available ports and commands (for example, selecting the Relay command lists the ports and actions relevant for this action type)
Driver:	A user defined protocol that allows Kramer's control products to communicate with a hardware peripheral, for example, a projector
Monitor Event:	A special case of Trigger which contains a sequence of commands that only runs when a predetermined port event occurs (for example, the projector Power On command initiates a series of actions contained in the "Power" Monitor Event trigger)
Port Manager:	The Port Manager window lists the available ports, lets you write a description and assign a default driver for each port, as well as determine which port will appear in the Web Access Main page
Trigger:	A sequence of commands (Action List) that can be run automatically, manually via the Web, or based on a schedule (for example, Device Startup)
GPI/O	General Purpose Input/Output is a port that can be configured by the K-Config software

¹ Refer to the separate user manual(s) and guides, which you can download at <http://www.kramerelectronics.com>

² "Dry Configuration"

1.9 Defining the System

This section defines the minimum requirements for the Kramer **K-Config** and describes how to install your system.

1.9.1 System Requirements for the Kramer K-Config

The system minimum requirements include:

- 400MHz or faster processor
- 128MB or more RAM
- At least 300MB free hard disk space
- Network connection for configuring devices or USB
- Microsoft.NET® Framework 2.0 Service Pack 1, automatically installed (see [Section 2.1](#))

1.9.2 Operating Systems

Microsoft® Windows XP®, Microsoft Vista (32 or 64 bit) or Microsoft Windows 7 (32 or 64 bit) are the recommended operating systems¹. Other Windows versions are not supported.

2 Kramer K-Config Software Installation

To install the software, do the following:

- Check that “.NET Framework” Revision 2.0 software is installed or install it if it is missing (see [Section 2.1](#))
- Install the USB driver (see [Section 2.2](#))
- Install the Kramer **K-Config** software (see [Section 2.3](#))

2.1 Installing the “.NET Framework” Revision 2.0 Software

Prior to using the Kramer **K-Config** software, make sure that the “.NET Framework” Revision 2.0 software is installed on your PC. If it is not, you need to install it:

- If you have a fast Internet connection, this software is automatically installed during the installation of the Kramer **K-Config** software
- If you do not have a fast Internet connection, insert the CD-ROM into the CD-ROM drive, double click the *dotnetfx.exe*² file and follow the on-screen instructions³

2.2 Installing the USB Driver

If you wish to configure the RC device by connecting it via a USB cable, you need to download and install the USB driver. Otherwise you will be prompted to do so when starting the Kramer **K-Config** software:

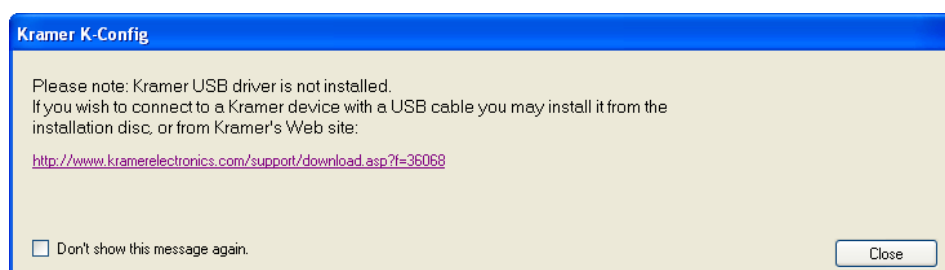


Figure 2: USB Driver Notice

Install the Kramer USB driver from the installation disc or from our Web site at <http://www.kramerelectronics.com/support/downloads.asp>.

¹ Windows NT does not support .NET 2.0 and cannot be used

² File names are liable to change

³ Installation may take about 15 minutes

2.3 Installing Kramer K-Config Software

To download Kramer K-Config¹ from the Internet:

1. Go to <http://www.kramerelectronics.com/support/downloads.asp> and download the file: “Kramer K-Config.zip” from the DOWNLOADS section.
2. Extract the file “Kramer K-Config.zip” package, which includes the Kramer **K-Config** application setup and the Kramer device drivers², to a folder (for example, C:\Program Files\Kramer K-Config).
3. Install the Kramer K-Config application.
When running Setup, you are prompted to set the working directory (see [Figure 3](#)):

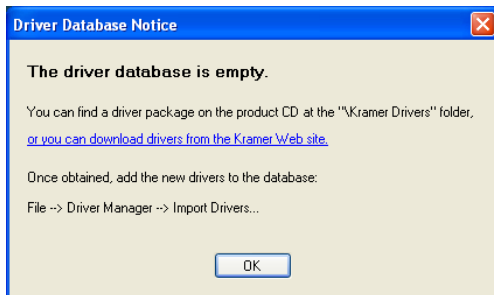


Figure 3: Driver Database Notice

4. Click OK.
The following window appears (see [Figure 4](#)):

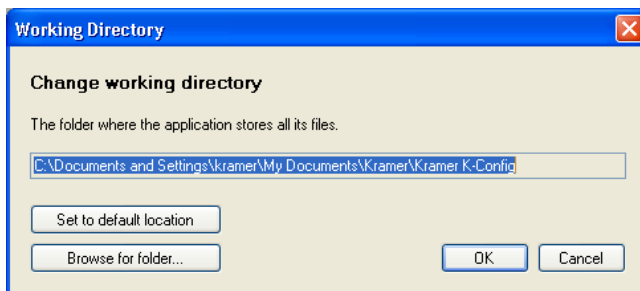


Figure 4: Setting a Working Directory

5. Select or create a new working directory³ (see [Figure 5](#)).

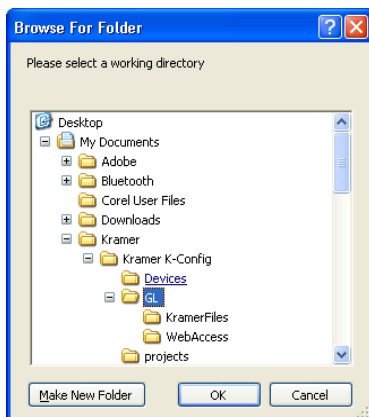


Figure 5: Change Working Directory Window

6. Continue to run the setup according to the installation instructions.

¹ File names are liable to change from time to time

² Mostly for matrix switchers and switchers

³ The working directory will keep the information that is essential for operating the software. This information will remain unchanged while upgrading the software

3 The Peripheral Device Drivers

The RC system peripheral devices have device drivers that let them communicate with computers. The device driver needs to be installed so that the computer can recognize it and control it. The Kramer **K-Config** software uses driver commands to control these peripheral devices.

Check—according to your list of peripheral devices—that you have all the required drivers:

- Kramer machines have drivers that are provided within the package
- Other peripheral device drivers that are included in the package

If the peripheral device that you are using is not included in the drivers package, you can manually write the relevant commands, as described in [Section 9.1](#).

Driver commands that have a data range (for example, volume adjustment) can be written into the Tables area, as described in [Section 9.1](#).

This section describes how to:

- Download the drivers of the peripheral devices (see [Section 3.1](#))
- Install the drivers (see [Section 3.3](#))

3.1 Downloading the Drivers

Download the required drivers to a folder, for example, C:\Media-Room-1\Peripheral Device Drivers.

3.2 Importing xml Templates

Import the device template xml files via the Import Device item in the File menu. The device templates (for real or virtual devices) are added to the Master/Auxiliary device list (and folder). For further details, see [Section 10.1.3](#).

3.3 Importing the Drivers

The peripheral device drivers are installed via the Driver Manager window, defined in [Figure 130](#) and [Table 9](#):

To access the Driver Manager window:

1. Open the **Kramer K-Config** program.
2. If the USB driver is not installed, the following window will appear:

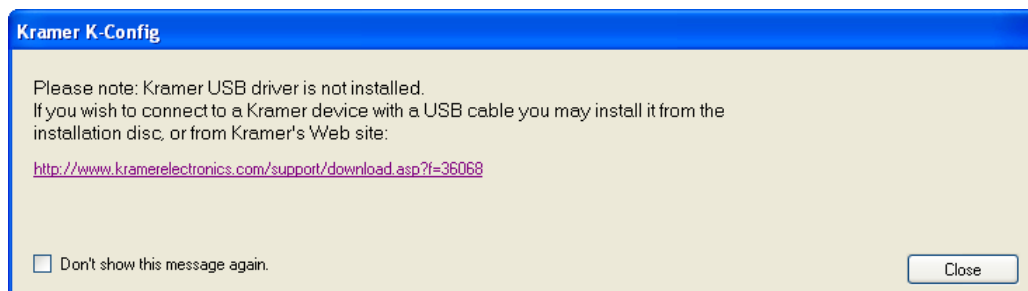


Figure 6: USB Driver Installation Notice

3. From the File menu, click Driver Manager.
The Driver Manager¹ window appears (see [Figure 7](#)).

¹ The Driver Manager window features and functions are described in [Section 9](#)

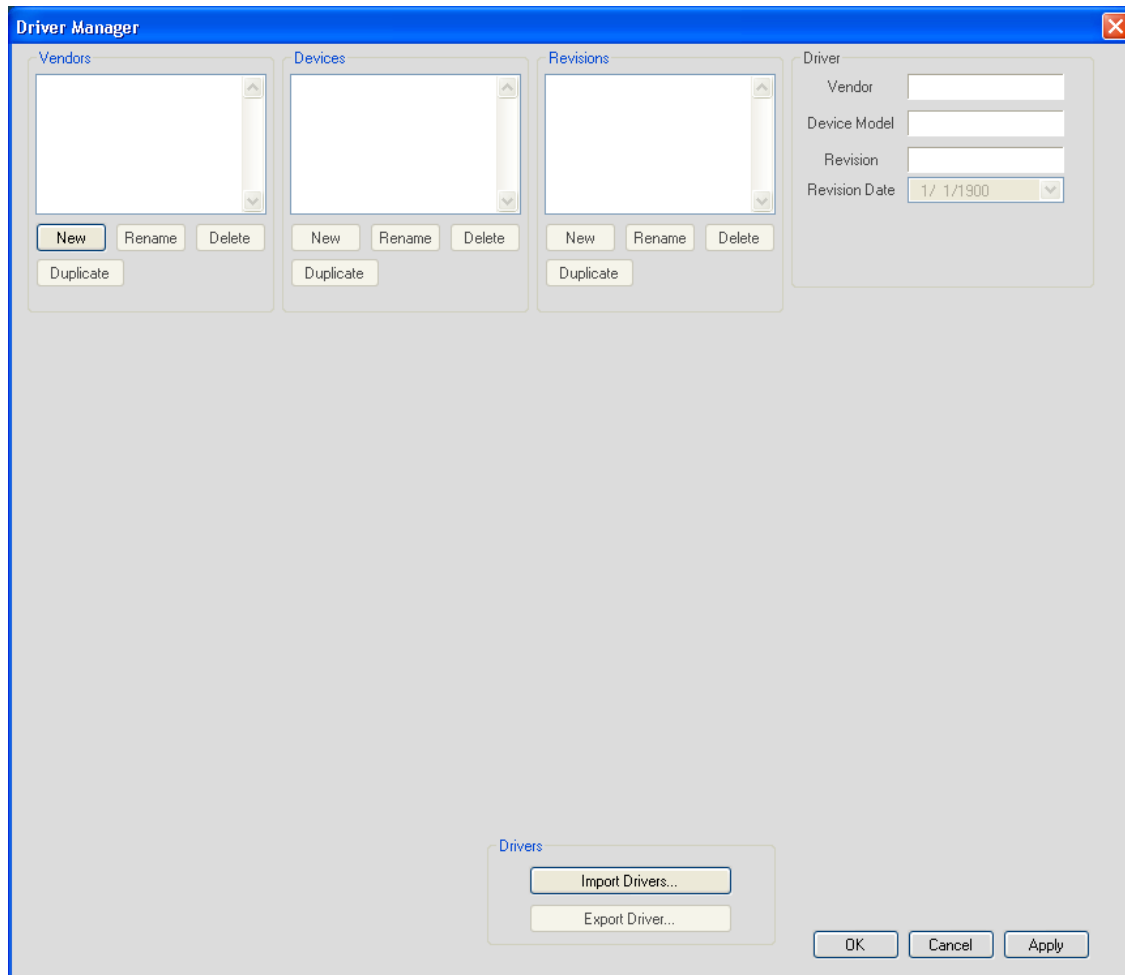


Figure 7: The Driver Manager Window Prior to Installing the Drivers

4. Click Import Drivers.
The Open window appears (see [Figure 8](#)).

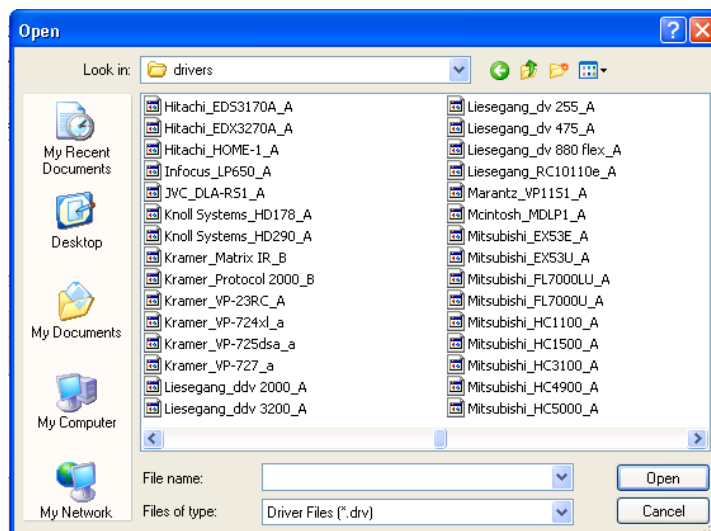


Figure 8: Importing the Driver Files

5. Select the drivers that you need and click OK.
The Driver Manager window shows the selected drivers (vendors, devices, revisions and commands are specified), see [Figure 9](#):

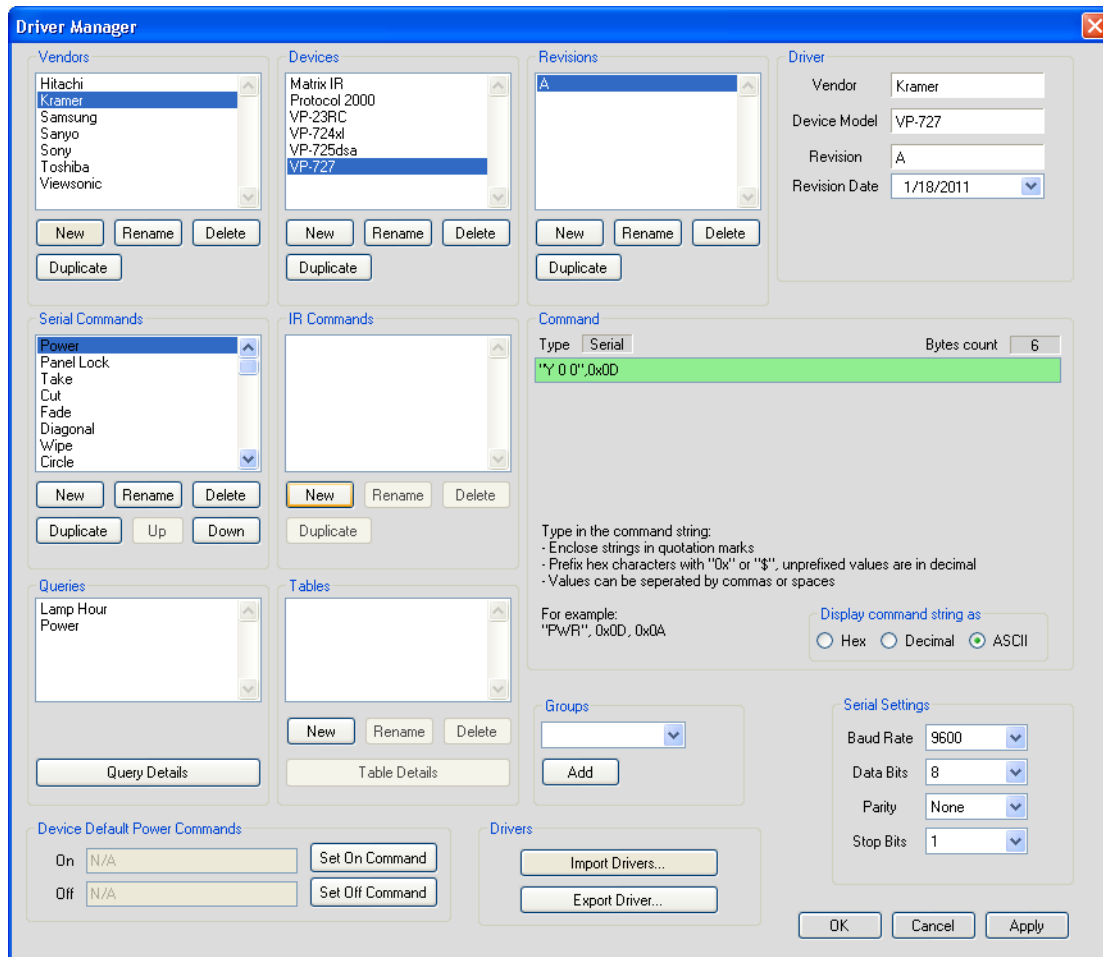


Figure 9: Loading the Drivers

- Click OK (or Apply and then OK).
The drivers are now installed¹.

The Driver Manager features are defined in [Section 9](#)

4 Defining the Control Room

You can define the control devices setup in the room via the Control Room. Depending on the Master RC, up to four Aux K-NET devices and two Virtual Devices can be used in the same control setup. At any point you can right click a control device to perform further functions.

It is recommended to open a new project before defining the control room.
At any point, you can save (or save as...) the project, see [Section 1.5](#).

In the following example the **SV-552** is selected as the Master room controller, the **RC-63DL** is the connected auxiliary panel² and the **RC-4** is the IR remote control transmitter.

¹ The driver commands appear in the Web Access page

² Some of the devices in the Add Device list (for example, the WP-500) do not accept auxiliary devices

To define the devices via the Control Room:

1. In the Control Room¹ area, click +.
The Add Device window appears:

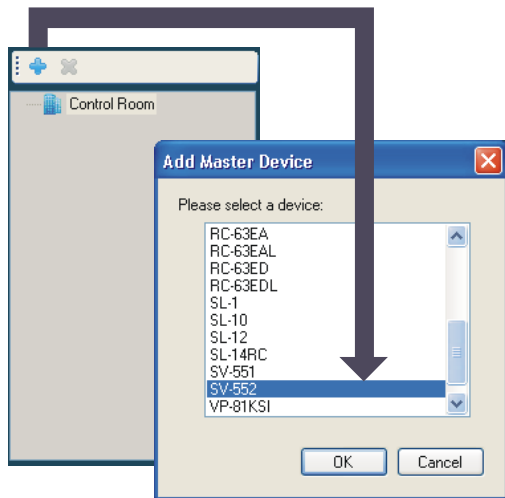


Figure 10: Adding the Master Device

2. Select a device (for example, **SV-552**) and click OK.
The selected device name appears in the Control Room area, and the image of the device appears in the Device View area of the Front Panel tab:

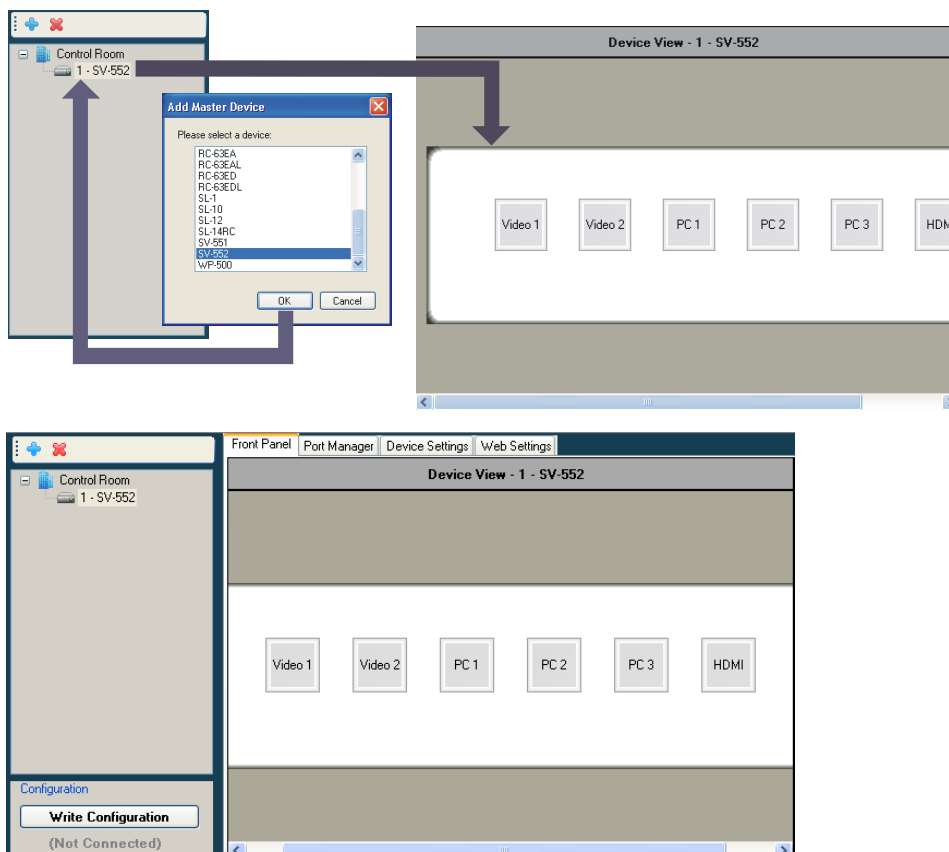


Figure 11: The Master Device View

3. Select the Master device (1 - SV-552) and Click + again². Select an auxiliary device (for example, **RC-63DL**) from the Add Device list and click OK.
The **RC-63DL** front panel appears in the Device View area.

¹ Right click the "Control Room" area to rename it or to add a new Master device

² Right click the master device to add an auxiliary device, delete the master device and auxiliary devices, add a description and set the K-NET™ ID

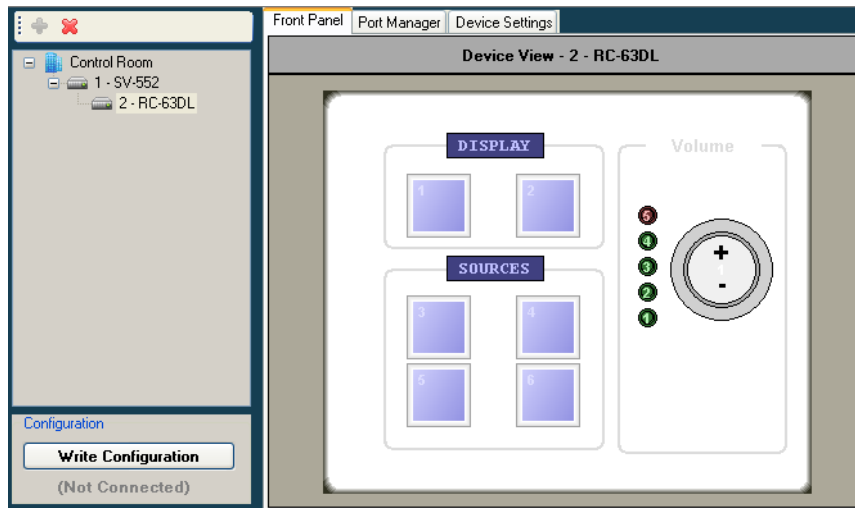


Figure 12: The Auxiliary Device View

4. In the Control Room area, select 1 - SV-552¹.
 5. Click +.
 6. Select a device from the list (for example, the **RC-4** remote control transmitter, see [Section 4.1.2](#)).
- The **RC-4** (when selected in the Control Room area) appears in the Device View area of the Front Panel tab).

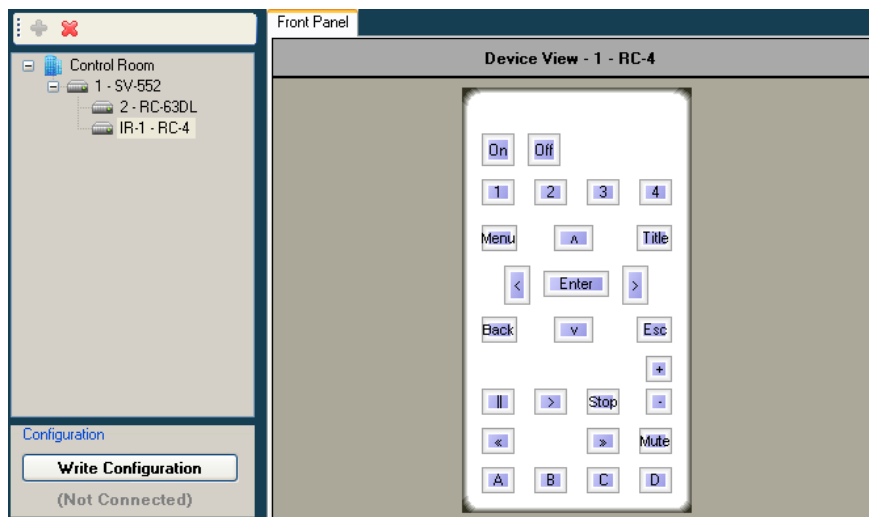


Figure 13: The Remote Control Device View

To add additional auxiliary devices (depending on the Master RC selected, up to four Aux K-NET devices and two Virtual Devices can be used in the same control setup, see [Table 4](#)), repeat the above steps

If the definition of the Control Room does not match the actual connected control room, the following warning appears:

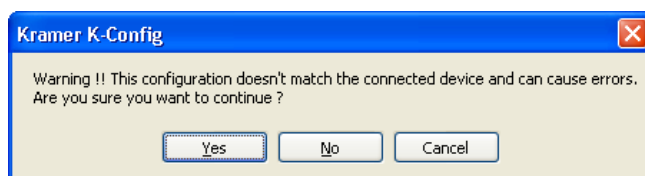


Figure 14: Configuration Mismatch Warning

¹ It is necessary to select the Master controller to add an additional device

Note: Be sure that your control room setup tree is correct before continuing with the configuration. If, at a later stage, an auxiliary K-NET device or a Master RC will be deleted from the tree, all the port assignments, triggers and action lists written for all the devices in the tree will also be deleted

You can right-click a device to carry out several operations, as illustrated in the examples in [Figure 15](#):

- Add a device (Master RC only)
- Delete a device
- Add a description that will appear in the Device View area
- Set the K-NET™ ID (see [Section 8](#))
- Edit the device view (virtual device only)
- If the setup includes two or more identical AUX panels – you can set some of them to be the “exact same as” another AUX/Master device (so they will behave in the exact same manner)
- Export a device (for virtual devices only)

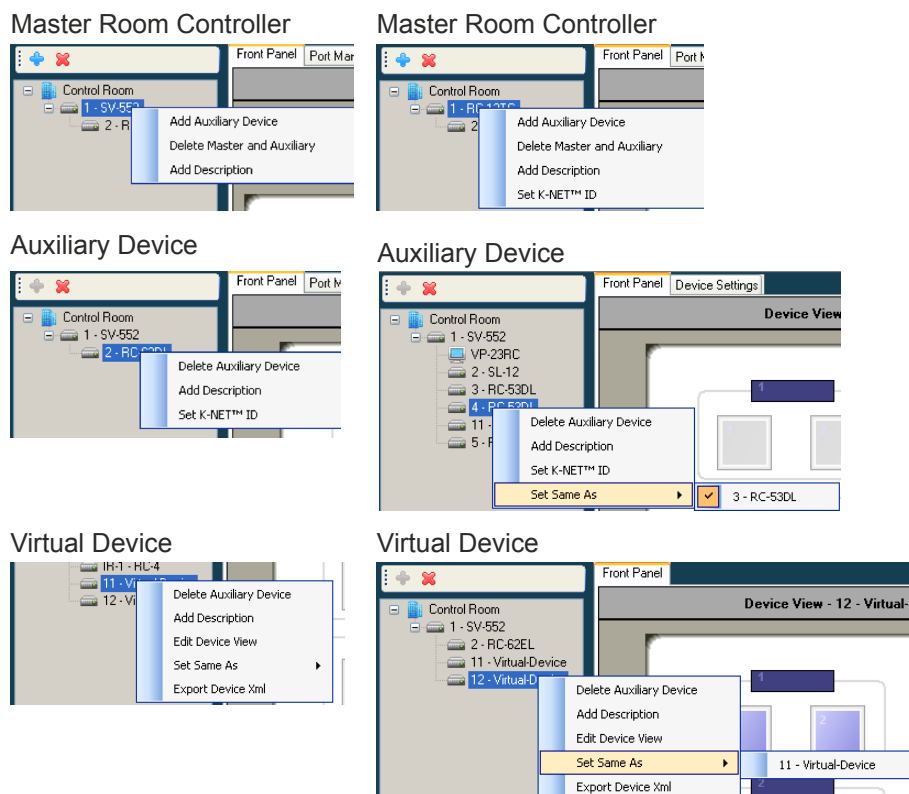


Figure 15: Device Operations

4.1 Special Auxiliary Devices

This section describes some of the auxiliary devices in more detail.

4.1.1 The Virtual Device – Compatible with SL-1, SL-10, SL-12, SL-14RC, RC-74DL, SV-551 and SV-552

A virtual auxiliary application can be developed¹ by the installer and used as a virtual user room control interface under a common OS (iOS®, Android™ and so on) to control room functions via IT infrastructures. To support the Virtual Device application, a Virtual Device triggers layer must be defined by K-Config. This layer will associate triggers sent from the virtual application to the

¹ See the Kramer "Virtual Device Build Guidelines" on our Web site at <http://www.kramerelectronics.com>

Master RC to a series of control actions. Once you have created a Virtual Device layout, it can be shared using the Import/Export XML function under the File menu.

After adding a Virtual Device to the room control tree¹, the Front Panel area shows the basic Virtual Device panel, that includes six buttons, two labels and two frames:

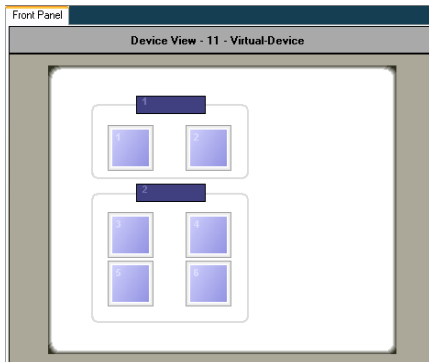


Figure 16: The Basic Virtual Device Front Panel

Right click the virtual device icon in the Control Room area to edit the device view via the Virtual Device Properties window (see [Figure 17](#))

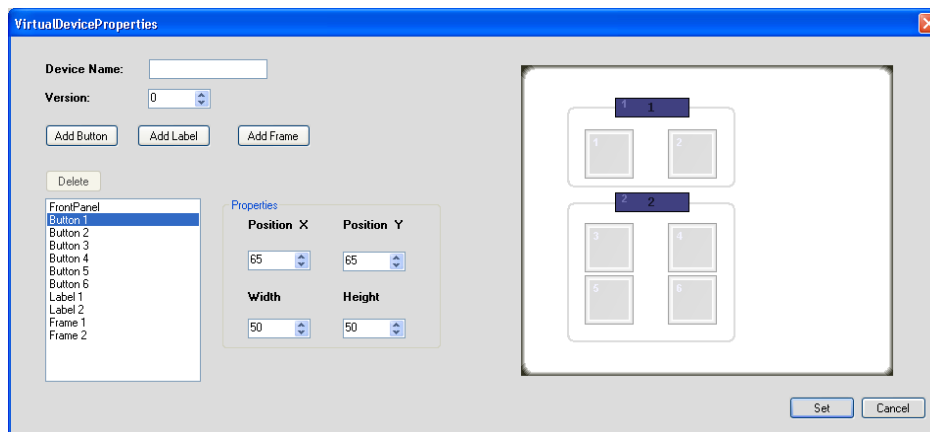


Figure 17: The Virtual Device Properties Window

The Virtual Device Properties window lets you add or delete buttons², labels (active text field) or frames and set their position and size. You can also keep track of the virtual device versions by setting the version number. This helps keep track of the version, especially when exporting a virtual device.

Note, that the exact appearance of the Virtual Device triggers layer in K-Config has no real correlation to the look-and-feel and button layout of the Virtual Device application running on the auxiliary device.

In the virtual application, the developer will only address the ID Numbers of the buttons and labels that were defined in K-Config as part of the Virtual Device, but their appearance in K-Config have no significance or relation to the appearance of these buttons and labels in the virtual application.

The appearance of the layout functions of the configured Virtual Device make the representation of this trigger layer easy and straightforward to use when configuring Action lists in K-Config and when addressing the buttons and labels in the Virtual Device applications.

Complete guidelines for creating the Virtual Device application can be found in the "Virtual Device Build Guidelines" document, available on our Web site.

¹ You can add up to two virtual devices (as determined by the Master RC)

² You can add up to 32 buttons

For example, you can change the appearance of the virtual front panel as illustrated in [Figure 18](#):

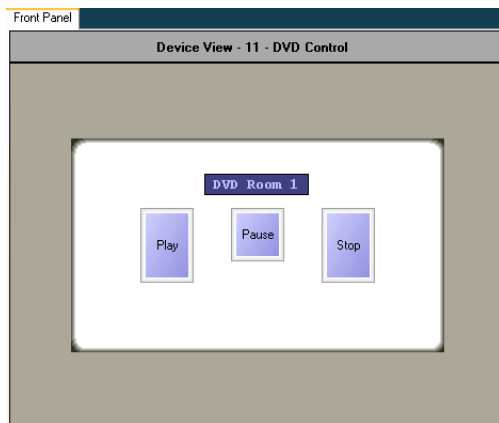


Figure 18: Custom Virtual Device Appearance in K-Config

To change the appearance of the virtual device front panel, as illustrated in [Figure 18](#), do the following¹:

1. In the Virtual Device Properties window, delete buttons 6, 5 and 4 (the order will always be from the higher number to the lower²), frame 2 and frame 1, and Label 2, as illustrated in [Figure 19](#):

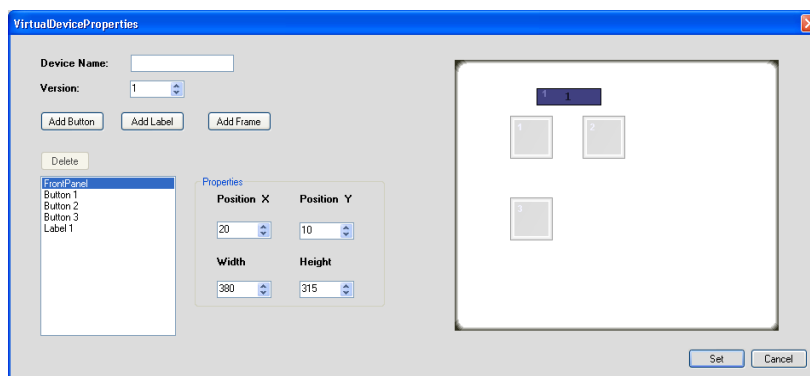


Figure 19: Editing the Virtual Device Appearance (Step 1)

2. Set the size of the front panel, the size of the buttons (up to 32 buttons can be added), the label size and their position, as well as the Device Name (see [Figure 20](#)):

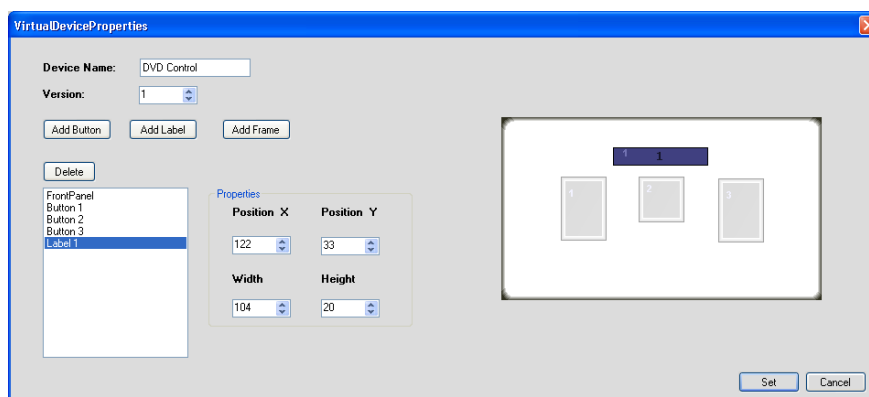


Figure 20: Editing the Virtual Device Appearance (Step 2)

The Virtual Device appears in the Front Panel area (see [Figure 21](#)):

¹ You do not have to follow the subsequent steps in the same order

² Always delete items from the highest number to the lowest

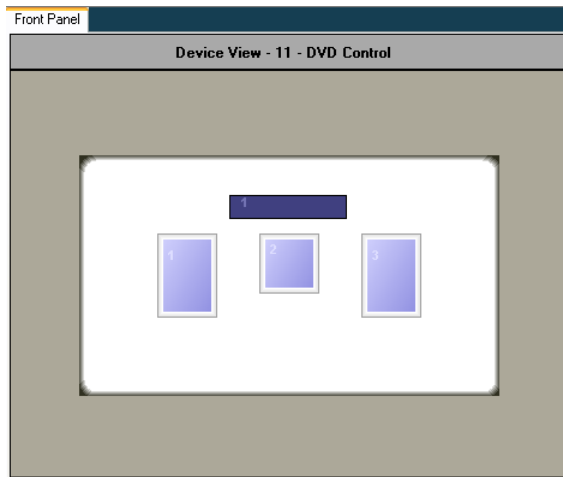


Figure 21: The “DVD Control” Virtual Device Front Panel

3. Right click the label and buttons to name them (see [Figure 23](#)):

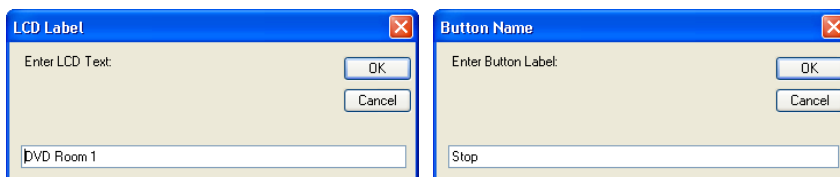


Figure 22: Setting the LCD and Button Label Names

[Figure 23](#) illustrates the final appearance of the virtual device:

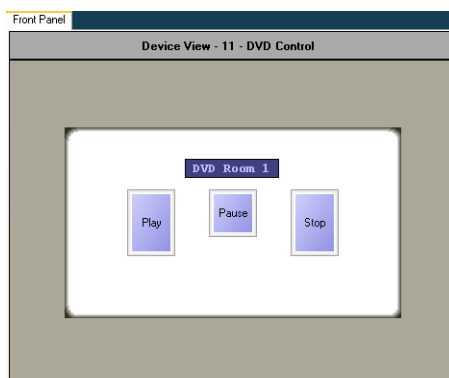


Figure 23: Final Appearance of the “DVD Control” Virtual Device Front Panel in K-Config

Note: The Virtual Device View button sizes, as well as their name and location in K-Config have no functional meaning in the Virtual Device application.

Only the number of defined buttons (three) and the label (interactive field text) are correlated to the Virtual Device application.

4.1.2 The RC-4 Remote Controller – Compatible with SL-1, SL-10, SL-12 and SV-552

The **RC-4** remote controller transmitter (see [Figure 24](#)) is used to control the RC devices in the room¹. Each button on the remote control can trigger a series of actions that are defined by the Kramer K-Config Software.

To activate a series of actions, point the transmitter at the front panel receiver of the room controller device, or, alternatively, you can point the **RC-4** at an external remote IR receiver available separately (C-A35M/IRR-50). An extension cable, for an extended range of up to 60 meters is also available (C-A35M/A35F-50).



Figure 24: The RC-4 Remote Controller

¹ Download up-to-date Kramer user manuals from the Internet at this URL: <http://www.kramerelectronics.com>

5 Tab Area Settings

The tab area includes the:

- Machine front panel – shows the front panel of the selected machine and if available, lets you configure a button trigger
- Port Manager (see [Section 5.1](#))
- Device Settings (see [Section 5.2](#))
- Web settings (see [Section 5.3](#))

5.1 Defining the Port Manager

The Port Manager tab defines the ports on the selected K-NET device (Master RC or Aux K-NET device) or standalone room controller and lets you write a description and assign a default driver to each port.

Note that ports on auxiliary devices can be used only for sending outgoing commands from the auxiliary device to an AV device. If you need to use Monitor event triggers or Queries functions, which rely on bidirectional communication, connect the AV device to the K-Net master device. For similar reasons, GPI/O ports on the auxiliary devices will be disabled.

To define the port manager (for example, a projector driver that is connected to the RS-232 9-pin D-sub port of an **SV-552**), do the following:

1. In the Control Room area, select 1-SV-552.
2. Select the Port Manager tab.

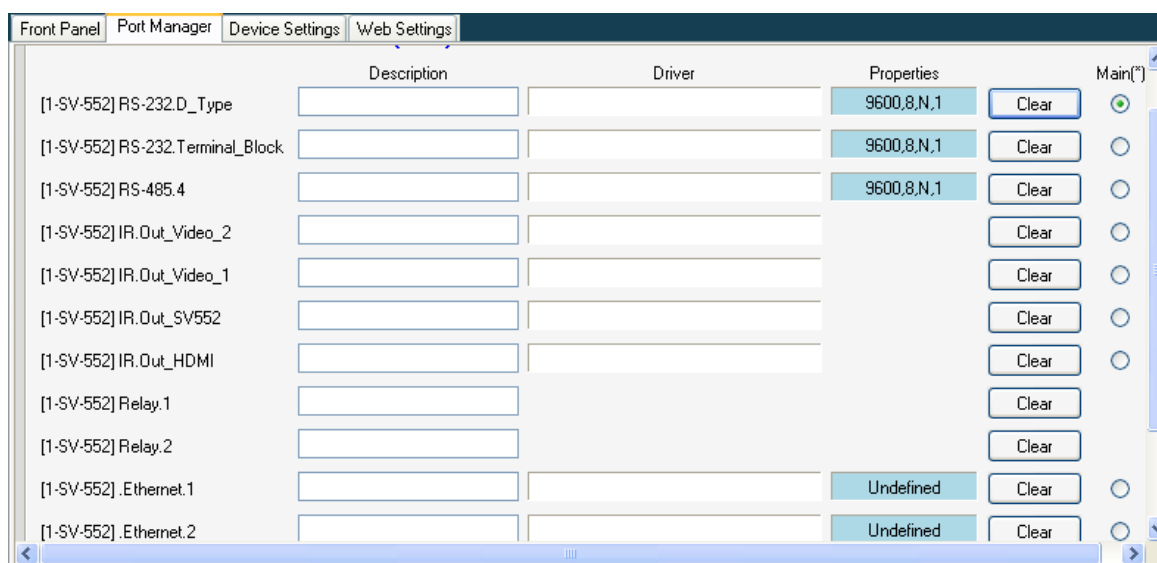


Figure 25: The Port Manager

3. Click the Driver area next to [1-SV-552] RS-232.D_Type.
4. The following window opens:

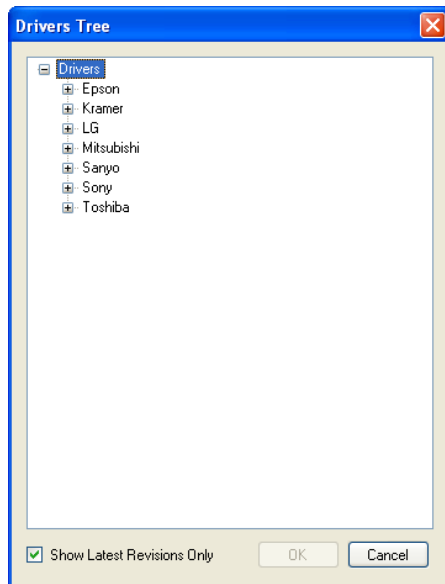


Figure 26: The Drivers Tree Window

5. Select and double-click the relevant manufacturer.
6. Select the desired driver and click OK.

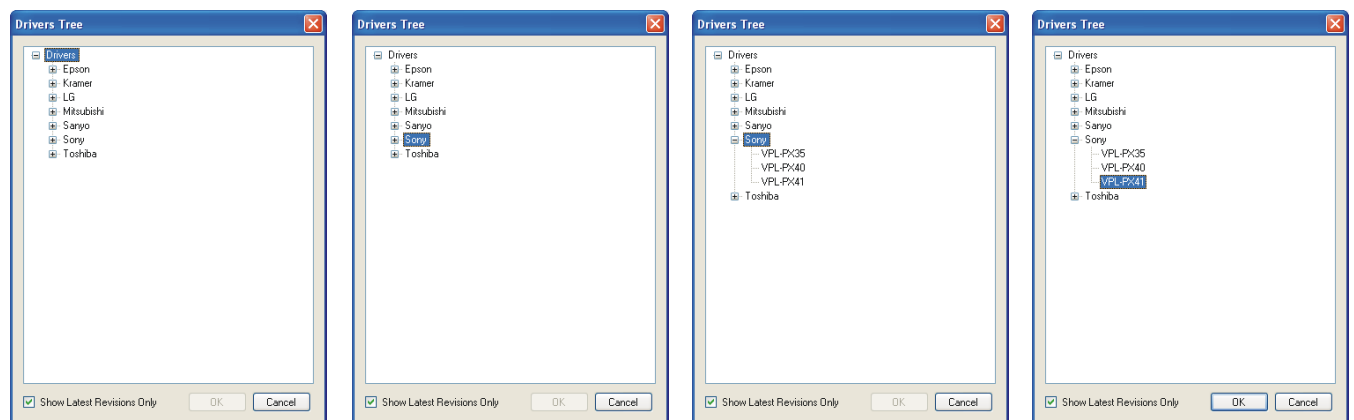


Figure 27: Selecting a Driver

7. The projector driver is assigned to the RS-232 port:

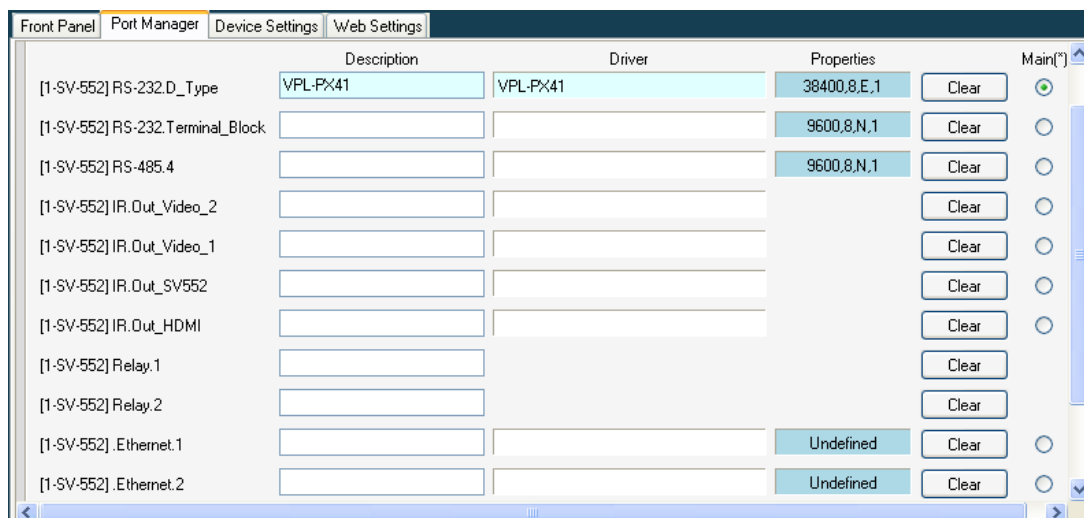


Figure 28: Assigning a Driver to a Port

8. If required, click the Description field to change the description:

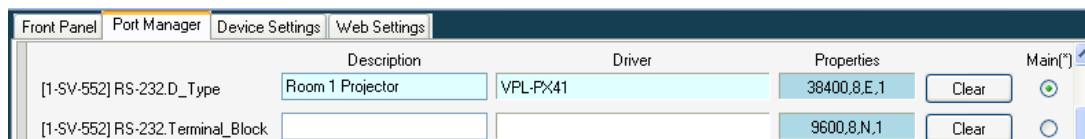


Figure 29: Writing a Port Description

9. In the same way add a driver to each of the other ports.
10. Click the Properties field to define the Serial settings for the serial ports:

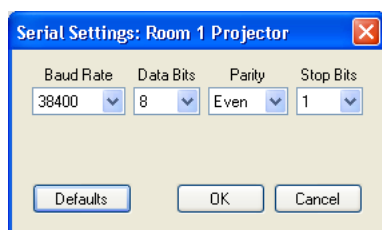


Figure 30: Serial Settings Window

11. When defining the ports of a Master RC which is Site-CTRL compatible, check the radio button "Main" to select the port which will appear in the main display of the Master RC Web pages¹. The same display device will be monitored in the Site-CTRL overview page.
12. If required, change the data field manually (although it changes automatically when setting the driver), by clicking the relevant properties field:

The assigned driver automatically appears in the Port Command tab when the relevant port is selected. In the example above, RS-232.D_Type port is selected and the command drop-down list includes all the driver commands (see [Figure 31](#)):

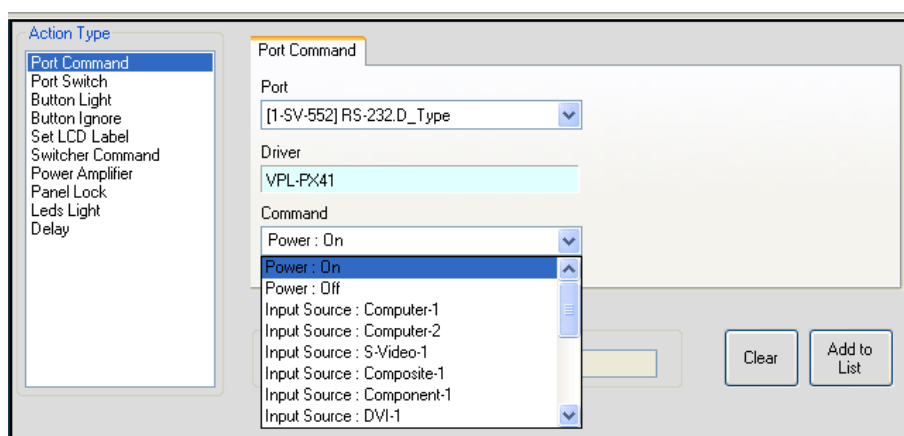


Figure 31: The Port Commands

You can, at any time, change the driver either via the Port Manager tab or the Port Driver area.

The assigned driver also appears in the Control Room area under the device it is connected to, as illustrated in [Figure 32](#):

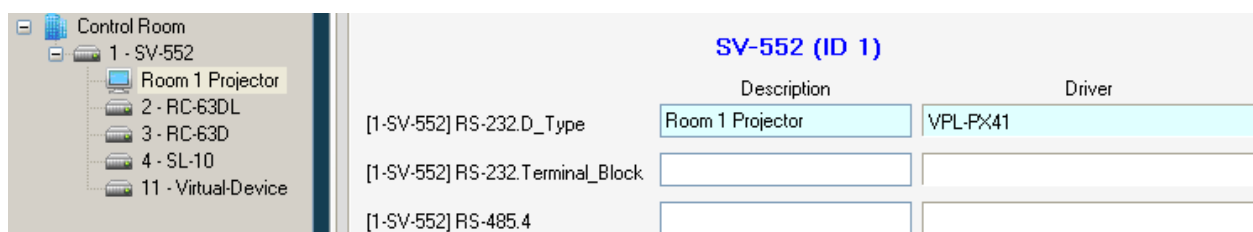


Figure 32: The Assigned Driver in the Control Room Area

¹ The same display device will be monitored in the Site-CTRL overview page

5.1.1 Defining the Ethernet Ports

The Ethernet ports let you send serial commands via the Ethernet port to up to three IP addresses located on the same subnet.

To define an Ethernet port, do the following

1. Set the Ethernet port Driver and Description.
2. Click the Properties field to define the Ethernet settings:

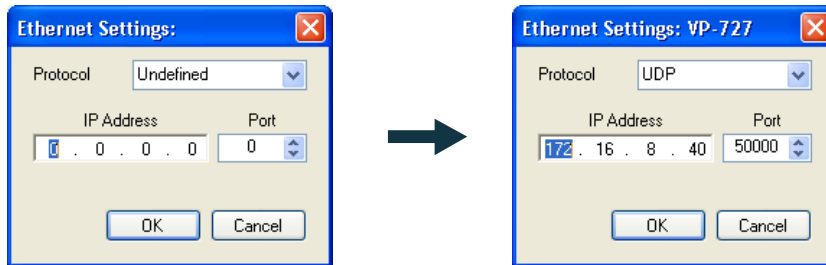


Figure 33: Ethernet Settings Example

3. The Ethernet port appears in the Port Command list and can be used to send any commands or triggers to the device.

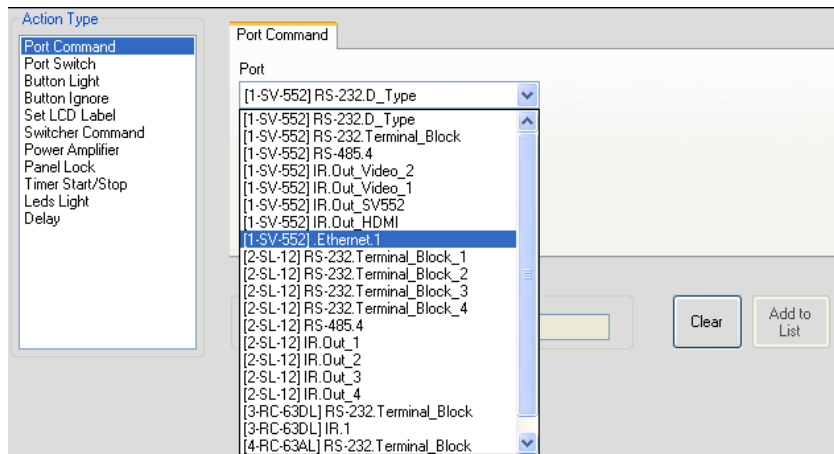


Figure 34: Ethernet Port in the Port Command List

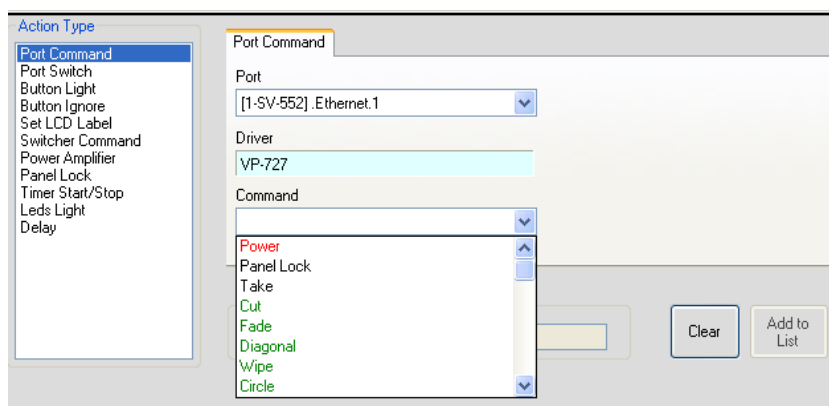


Figure 35: Ethernet Port in the Port Command List (Select Command)

5.1.2 Setting the Volume Properties

Set the volume properties for **SV-551** and **SV-552** (analog or digital), as illustrated in [Figure 36](#).

Figure 36: Set Volume Properties

Set the volume control to:

- Analog, if the volume of the integrated amplifier is controlled by an external analog audio knob (via the **SV-551/SV-552** 10k volume level input port, connected either to an analog audio knob of a K-NET Aux device like the **RC-63AL**, or any other compatible volume level knob)
- Digital, if the volume of the integrated power audio amplifier is controlled by an auxiliary device with a digital knob (for example, **RC-63DL**). In this case, the Amplifier port should be “connected” in the port manager to the relevant **RC-63DL** to achieve volume control. For digital audio level control, select the auxiliary device that will control the audio

5.1.3 Uploading EDID Information

You can upload EDID information (created with the Kramer EDID Designer application, for compatible devices) via the Port Manager tab. For example, to load the EDID for the **WP-501**, click the driver area:

Figure 37: Selecting the EDID File

Select the EDID file to upload and click Open:

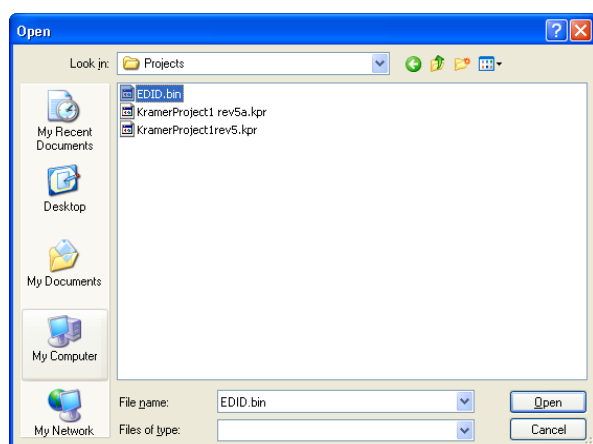


Figure 38: Loading the EDID File

The EDID file is uploaded:

Figure 39: EDID File Uploaded

The EDID information will be uploaded together with the entire open configuration project, after clicking the “Write Configuration” button.

5.2 The Device Settings Tab

Device setting readout is possible with standalone room controllers and K-NET Master RC or Aux K-NET devices connected with a K-NET cable to their Master RC, as defined in the Room Control tree. [Figure 40](#) shows the device settings tab:

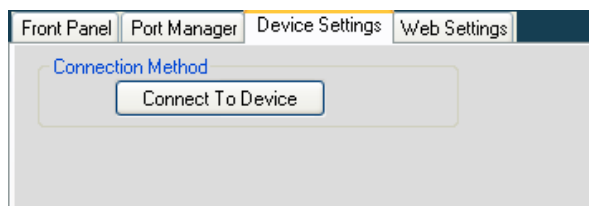


Figure 40: The Device Settings Tab

1. Click Connect To Device:
The Connect window appears (see [Figure 41](#)).
2. Select the connection method to the standalone controller or Master RC.

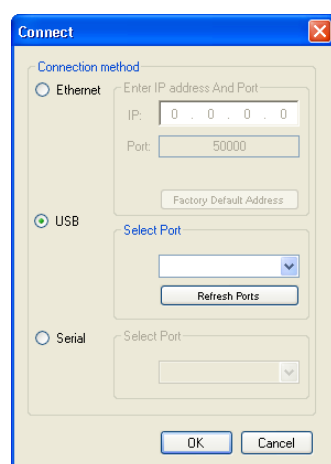


Table 6: Connect Dialog Box

Feature	Function
Connection Method Area	Check to select the connection to the device via the <i>Ethernet</i> , <i>USB</i> or <i>Serial port</i>
Ethernet Area	<i>IP</i> : Type the IP address of the device to which you want to connect. <i>Port</i> : shows the port number. <i>Factory Default Address</i> Button: Click to reset the IP address to its default value
USB Area	<i>Port</i> : select the communication USB port. <i>Refresh Ports</i> : click to check if there are ports ready to connect on the Kramer device
Serial	Select Port: select the communication port

Figure 41: Device Selection Dialog Box

[Figure 42](#) and [Table 7](#) define the device settings after connecting to the device¹:

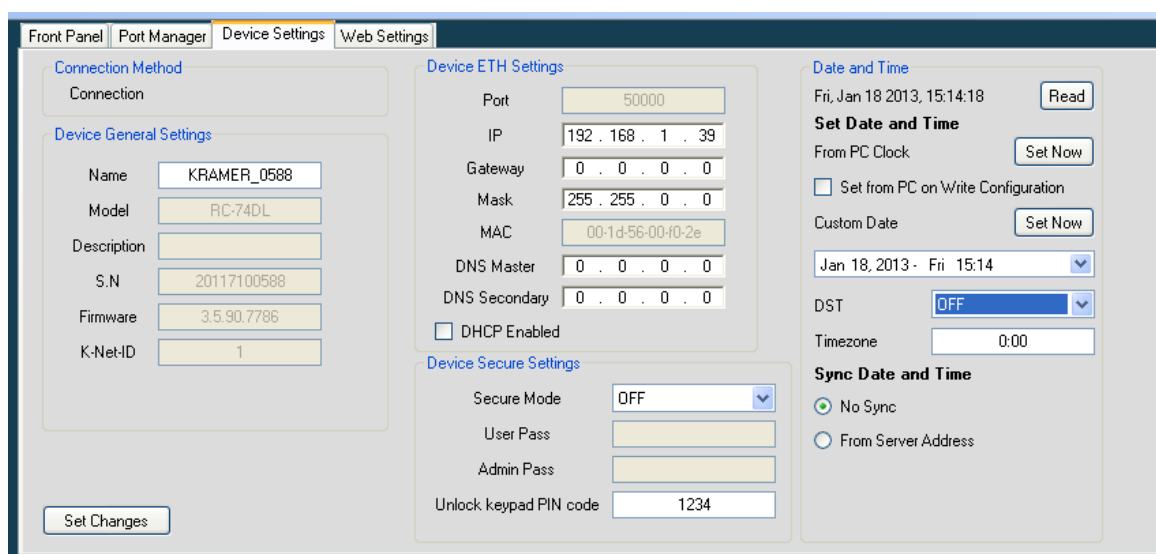
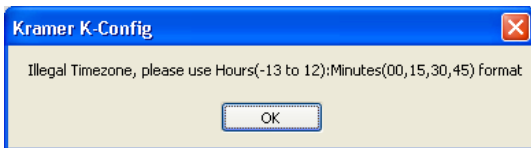


Figure 42: The Device Settings Tab (Device with Time Server Options Connected)

¹ The actual visible settings change according to the device

Table 7: The Device Settings Tab Features

Feature	Function
Device General Settings Area	Includes the device information (master and auxiliary device)
Device ETH Settings Area	Ethernet information (If required, you can change information) and DHCP ¹ Enabled
Device Secure Settings:	Secure Mode: OFF – the product definitions and configuration can be changed without requiring a password ON – a password is required to change the configuration and view or change the device definitions
	User pass: This password lets you view the device definitions in Web Access and Site-CTRL without changing the definitions
	Admin Pass Lets you change the device definitions and configuration via Web Access and K-Config
	Unlock Keypad PIN code: Set the key sequence ² to press to unlock the keypad in case it is locked by a trigger (activated by pressing a button, a schedule or via Web Access)
Date and Time	This area applies to devices with an Ethernet connection and time server settings options and lets you set the device's internal clock to use with the scheduler (see Section 6.5). The date and time can be set either manually, via a local server or via the Ethernet (see Section 5.2.1)
	Read date and time Click button to read the device's current date and time
	Set Date and Time Check Set from PC on Write Configuration to have the date and time updated whenever writing a configuration. Click the Set Now button to set the time from a connected PC Clock or to use a Custom Date (selected by the user)
	DST Daylight Saving Time or Summer Time correction. Set to ON if necessary
	Timezone Set the time zone relevant to UTC (Coordinated Universal Time). The time zone can be set from -13 to +12 hours relative to UTC in 15 minute intervals (00, 15, 30 or 45 minute intervals). For example, the time zone in Adelaide, Australia is UTC +9:30, therefore 9:30 needs to be entered in Timezone for that particular location. If the value entered is out of range, the following message appears: 
	Sync Date and Time Check "No Sync" or "From Server Address"

Note that the Date and Time area appears only for devices that include an Ethernet connector and support this function

5.2.1 Setting the Date and Time

You can set the date and time on machines that have an Ethernet connector to use with the scheduler. You can set the time from several sources such as from a PC connected to the device, an NTP (local) server, or the Ethernet. You can also set the time and date manually.

To read the current date and time on the device, click the Read button:

Current Device Time and Date

Read

The device time and date appears:

Sun, Jan 27 2013, 11:30:37

Read

¹ Dynamic Host Configuration Protocol: Allows the network administrator to distribute IP addresses from a central point and automatically send a new IP address when an Ethernet point is plugged into a different network location

² Since the button number does not appear on the actual keypad, the system integrator should inform the user regarding the key sequence

[Table 8](#) summarizes date and time setting options:

Table 8: Setting the Date and Time

Set Date and Time	Procedure																																																		
From a connected PC Clock	1. Click the "Set Now" button.	From PC Clock <div>Set Now</div>																																																	
	2. Click Read (from device) to check the updated values.	Sun, Jan 27 2013, 11:41:15 <div>Read</div>																																																	
	If you want the time and date to be set whenever writing a configuration, check "Set from PC on Write Configuration".																																																		
Manually	1. Click the dropdown box.	<div>Jan 27, 2013 - Sun 10:41</div>																																																	
	2. Select the desired date and time from the dropdown box. For example, select January 10 th .	<div>Jan 10, 2013 - Thu 10:41</div> <div><div>< January, 2013 ></div><table><tr><td>Sun</td><td>Mon</td><td>Tue</td><td>Wed</td><td>Thu</td><td>Fri</td><td>Sat</td></tr><tr><td>30</td><td>31</td><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td></tr><tr><td>6</td><td>7</td><td>8</td><td>9</td><td>10</td><td>11</td><td>12</td></tr><tr><td>13</td><td>14</td><td>15</td><td>16</td><td>17</td><td>18</td><td>19</td></tr><tr><td>20</td><td>21</td><td>22</td><td>23</td><td>24</td><td>25</td><td>26</td></tr><tr><td>27</td><td>28</td><td>29</td><td>30</td><td>31</td><td>1</td><td>2</td></tr><tr><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td></tr></table><div>Today: 1/27/2013</div></div>	Sun	Mon	Tue	Wed	Thu	Fri	Sat	30	31	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	1	2	3	4	5	6	7	8	9
	Sun	Mon	Tue	Wed	Thu	Fri	Sat																																												
	30	31	1	2	3	4	5																																												
6	7	8	9	10	11	12																																													
13	14	15	16	17	18	19																																													
20	21	22	23	24	25	26																																													
27	28	29	30	31	1	2																																													
3	4	5	6	7	8	9																																													
3. Click the Set Now button.	Custom Date <div>Set Now</div>																																																		
4. Click Read (from device) to check the updated values.	Thu, Jan 10 2013, 10:41:25 <div>Read</div>																																																		
From an NTP (local) server	1. In the Sync Date and Time area, check "From Server Address".	<div>Sync Date and Time</div> <div><input type="radio"/> No Sync</div> <div><input checked="" type="radio"/> From Server Address</div> <div><div>0 . 0 . 0 . 0</div></div> <div>Current Server Time and Date <div>Read</div></div>																																																	
	2. Type the IP address. For example, 192.168.0.6	<div><input type="radio"/> No Sync</div> <div><input checked="" type="radio"/> From Server Address</div> <div><div>192 . 168 . 0 . 6</div></div>																																																	
	3. Set the time zone according to UTC. For example, the time in Jerusalem is UTC +2:00	Timezone <div>2:00</div>																																																	
	4. Set the DST to ON (for adjusting the time to the "summer" clock) if required.	DST <div>OFF</div> <div>Timezone <div>OFF</div><div>ON</div></div>																																																	
	5. Click the Read (from server) button (below the IP number).	Current Server Time and Date <div>Read</div>																																																	
	6. Click Read (from device) to check the updated values.	Current Device Time and Date <div>Read</div>																																																	
	The device updated date and time appear	Sun, Jan 27 2013, 14:02:23 <div>Read</div>																																																	

Set Date and Time	Procedure	
From the Ethernet	1. In the Sync Date and Time area, check "From Server Address".	Sync Date and Time <input type="radio"/> No Sync <input checked="" type="radio"/> From Server Address <div>0 . 0 . 0 . 0</div> Current Server Time and Date <input type="button" value="Read"/>
	2. Type the IP address. For example, 64.90.182.55	Sync Date and Time <input type="radio"/> No Sync <input checked="" type="radio"/> From Server Address <div>64 . 90 . 182 . 55</div>
	3. Enter the Gateway ¹ in the Device ETH Settings area. For example, 192.168.0.254	Gateway <div>192 . 168 . 0 . 254</div>
	4. Set the time zone according to UTC. For example, the time in Athens is UTC +2:00	Timezone <div>2:00</div>
	5. Set the DST to ON (for adjusting the time to the "summer" clock) if required.	DST <div>OFF</div> Timezone <div>OFF</div> <div>ON</div>
	6. Click the Read (from server) button (below the IP number).	Current Server Time and Date <input type="button" value="Read"/>
	7. Click Read (from device) to check the updated values.	Current Device Time and Date <input type="button" value="Read"/>
	The device updated date and time appear	Sun, Jan 27 2013, 14:02:23 <input type="button" value="Read"/>
In case there was a problem reading the date and time, the following message appears:		Failed getting Date and Time. <input type="button" value="Read"/>

5.3 The Web Settings Tab

The Web settings are used to set the Web page language, logo and so on for Master RCs that are Site-CTRL compatible. [Figure 43](#) shows the Web Settings tab:

Front Panel | Port Manager | Device Settings | **Web Settings**

Language: English

Logo File: C:\Documents and Settings\kramer\My Documents\New Manuals\K-Config Rev 3\Projects\GL\KramerF

Logo URL: http://www.kramerelectronics.com

Room Name: Room 1

First day of week: Monday

☒ Upload Web Access pages to device

Figure 43: Web Settings Window

¹ Done by the Network administrator

6 The Triggers

A trigger comprises a series of actions that can be activated by an event, a press of a button or a preset schedule. In addition to the four built-in triggers (see [Section 6.1](#)), the Kramer **K-Config** also lets you create other custom triggers.

6.1 The Built-in Triggers

The built-in triggers are important for proper operation of the system:

- The **All Off** and **All On** triggers – the actions assigned to the All Off and All On triggers apply to the On and Off actions in the Site-CTRL Management Tool software, as well as in the built-in Web pages Macro tab
- The **Device Startup** trigger – lets you assign a series of actions that will define the status of the room system following power-up, and will constitute the basic system state¹.
For example, define the light status of the OFF button of the device upon power up; set the main display status to OFF and so on
- The **Device Inactivity** trigger – lets you define the room status in case of device inactivity² for a defined period (from 0 to 180 minutes). For example, power down the main display and then roll up the projector screen

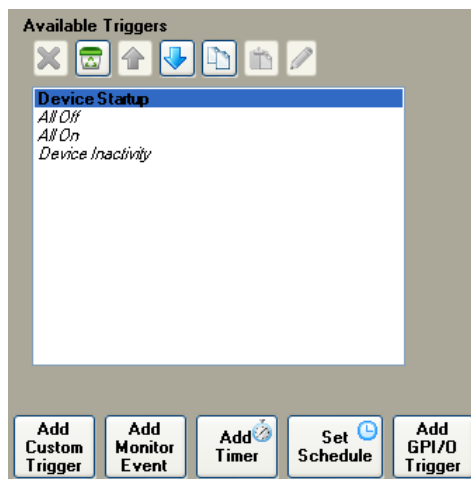
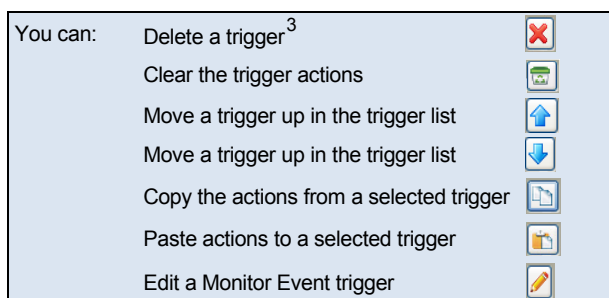


Figure 44: The Standard Built-in Triggers List



¹ For VP-81KSI only, startup is defined as detection of a PC-Graphics input signal

² No button was pressed on a standalone controller or any K-NET device. Note that, for VP-81KSI only, inactivity relates to the incoming syncs on the PC Graphics input channels

³ This button does not apply to the built-in triggers

6.2 Adding Actions to a Trigger

To add actions to a trigger (for example, to the built-in *All On* trigger), do the following:

1. In the Trigger area, select the *All On* trigger.
2. Select the Action Type¹ (for example, Port Command).

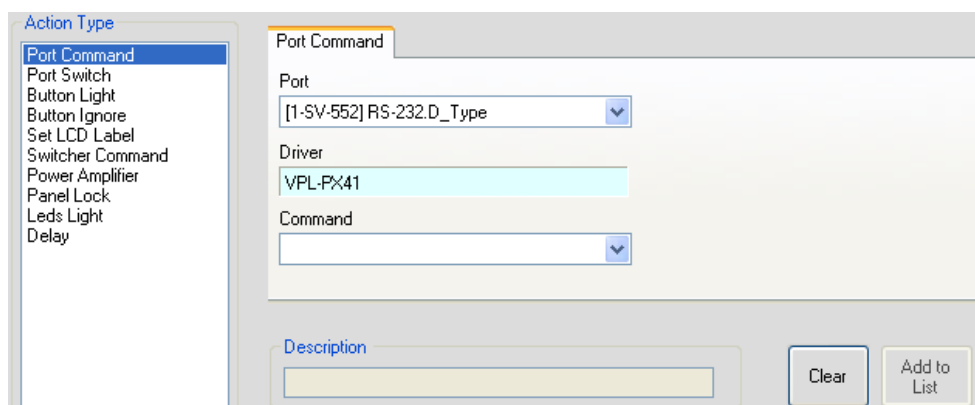


Figure 45: Selecting the Action Type (Port Command in this example)

3. Select the desired port (for example, RS-232.D_Type):

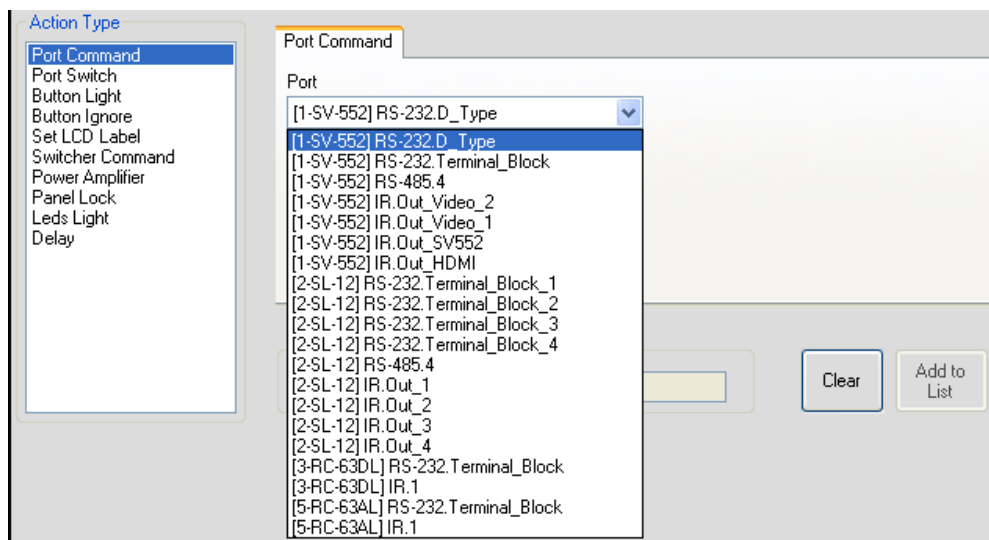


Figure 46: Selecting the Port

As illustrated in [Figure 46](#), the **SV-552**, **RC-63AL**, **RC-63DL** and **SL-12** ports appear in the list because they are included in the system. Each action type shows the relevant commands for all the machines included in the system. In this example, the system includes **SV-552**, **RC-63DL**, **RC-4** (see [Section 4.1.2](#)), **RC-63AL**, **SL-12**, **RC-53DLC** and 2 **Virtual Devices** (see [Section 4.1.1](#)). The Port Command includes actions for the **SV-552**, **RC-63DL**, **RC-63AL** and **SL-12** (there are no ports on the **RC-4**, **RC-53DLC** or the **Virtual Device**).

4. Select the Command (for example, Power: On):

¹ Selecting an Action Type from the list displays the list of its available commands

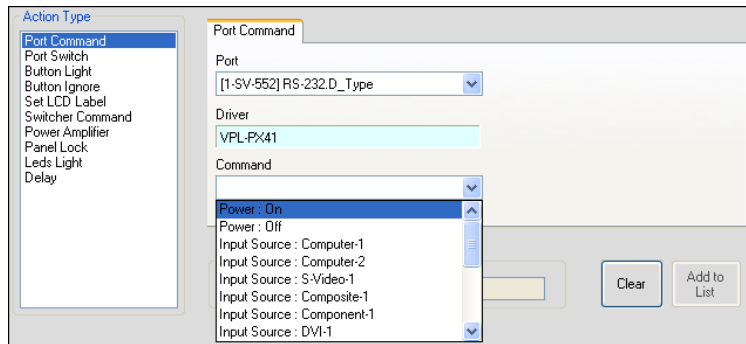


Figure 47: Selecting the Command

The Description area specifies the action to be added to the action list

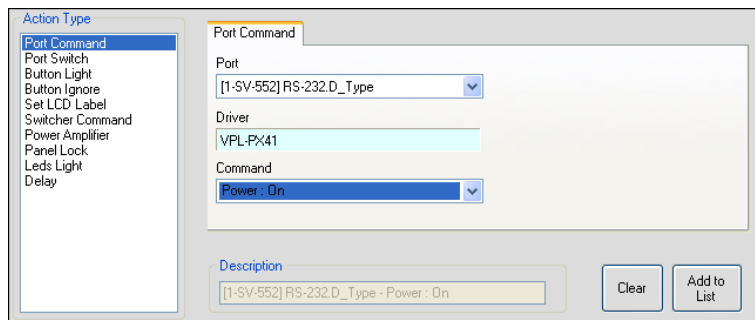


Figure 48: Action Description

5. Click the Add to List button.

The action is added to the Action List area (the name of the active trigger appears at the top of the list):

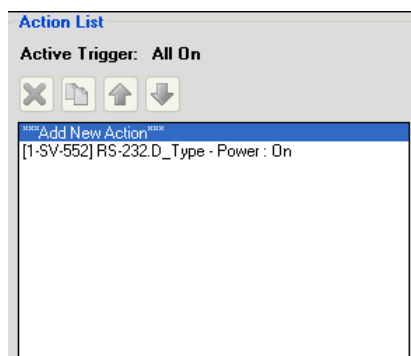


Figure 49: The New Action in the Action List

6. Select the “Add New Action” line in the action list and repeat the above procedure to add additional commands¹:

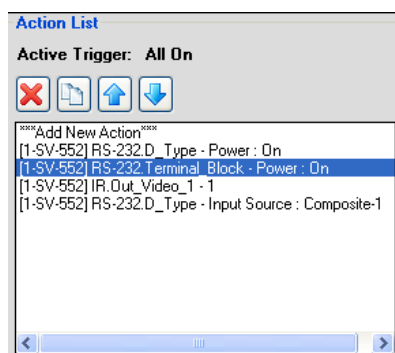
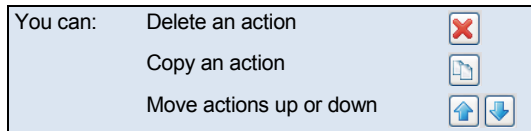


Figure 50: The Action List

¹ To replace a command, see [Section 6.3](#)



Once a Trigger is assigned with actions, its font is bold and no longer italic:

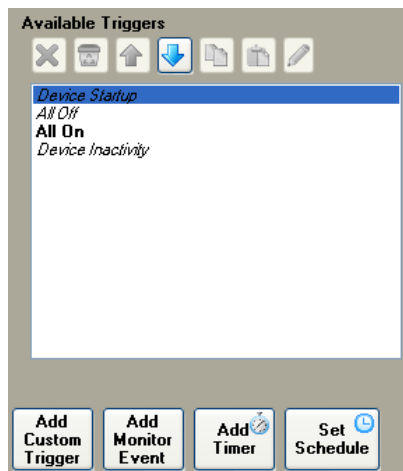


Figure 51: The All On Trigger (with actions assigned)

If the assigned driver has a table linked to it via the Driver Manager, it will appear in the Port Command area (see [Figure 149](#)).

6.3 Replacing an Action

This section describes how to replace an existing action.

In the following example, the Button 1 – Fast Blink action is replaced with Button 1 – Off. [Figure 52](#) illustrates an existing action list:

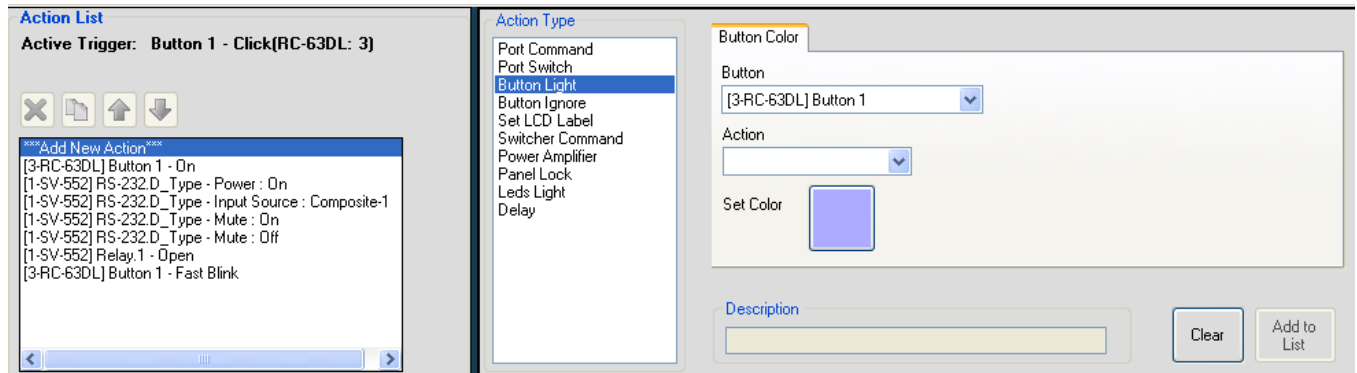


Figure 52: Button 6 - Click Action List

To replace the Fast Blink action:

1. Select the action you want to replace (for example, Fast Blink).
The Add to List button changes to OK.

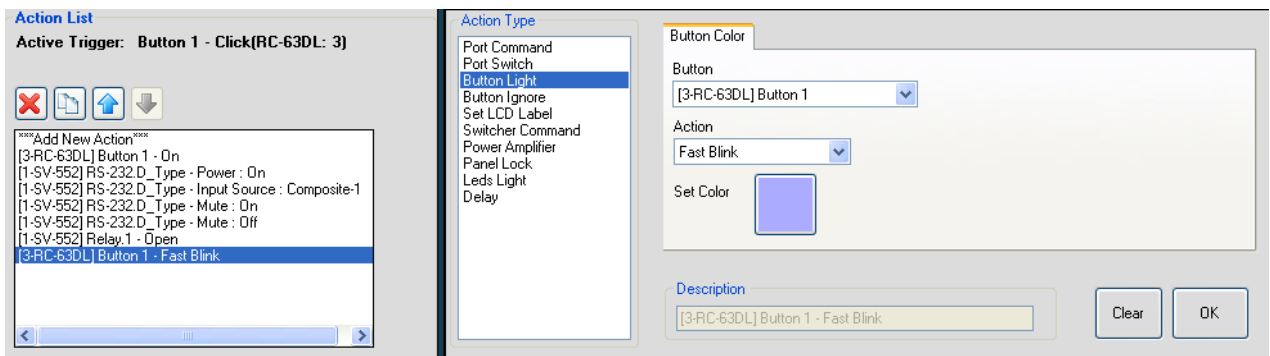


Figure 53: Selecting the Action to be replaced from the Action List

2. Select a new action from the drop-down list (for example, Slow Blink), and click OK:

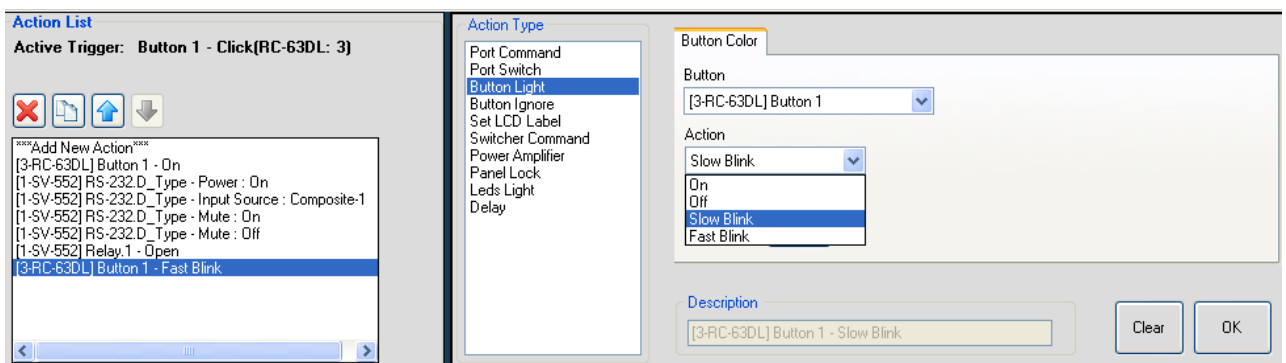


Figure 54: Selecting a New Action

The new action replaces the previous one:

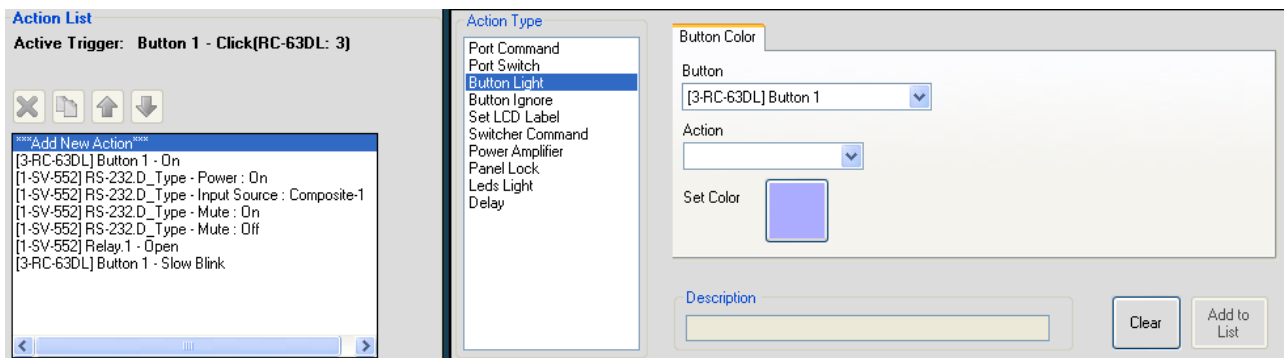


Figure 55: The New Action Added

6.4 Adding a Custom Trigger

A custom trigger, when added to the Available Triggers list, can be included in the schedule (see [Section 6.5](#)) or activated from the Web pages (in Site-CTRL-compatible room controllers).

To add a Custom Trigger:

1. Click the Add Custom Trigger button (in the Triggers area).
The following window appears:

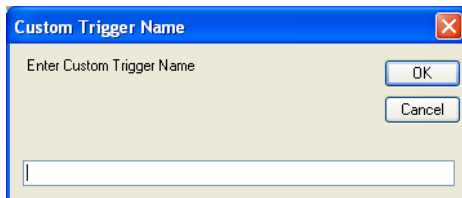


Figure 56: The Trigger Name Window

2. Type the name of the custom trigger, and then click OK:

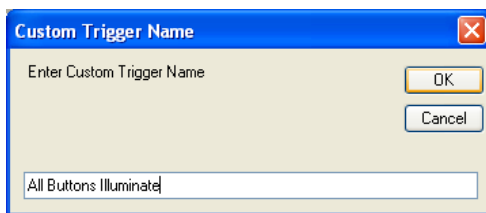


Figure 57: Writing a Trigger Name

The new trigger (in black) is added to the Available Triggers list:

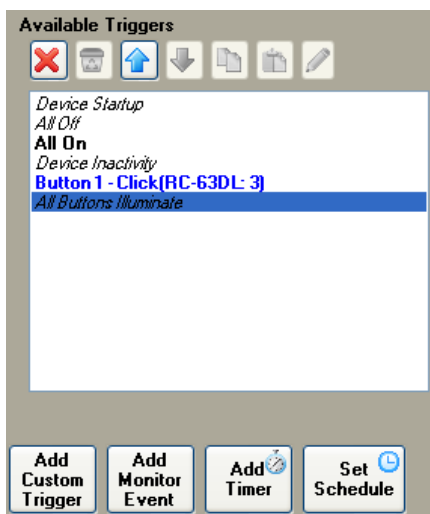


Figure 58: The New Custom Trigger in the Available Triggers List

You can now add actions to this trigger (see [Section 6.2](#)).

6.5 Set the Schedule

For devices with internal clocks, the schedule lets you activate All Off, All On and Custom trigger actions according to a preset schedule. The device's internal clock will synchronize with the host PC clock when uploading the configuration file to the device, so if scheduling is used, you have to verify that the PC clock is set appropriately.

Before setting the schedule, you need to set the device's date and time (see [Section 5.2.1](#))

To set a schedule, do the following:

1. Click the Set Schedule button. The Scheduling window appears:

Figure 59: The Scheduling Window

2. Set the Time, the Active Trigger, the Description of the selected schedule and the required days:

Active Trigger	Time	Repeat Every	Description
All On	09:20	Monday & Tuesday & ...	Activate Room 1
All Buttons Illuminate	09:23	Monday & Tuesday & ...	Buttons Test
All Buttons Illuminate	17:42	Monday & Tuesday & ...	Buttons Test
All Off	17:45	Monday & Tuesday & ...	Deactivate Room 1

Figure 60: Setting the Schedule

If required, you can edit or delete a trigger and then click Apply.

6.6 The Monitor Event Trigger

The monitor event is a trigger that activates a sequence of actions when a certain selected driver message, usually a reply of some sort, is detected coming from the connected peripheral on the relevant serial port (for example, the projector Power: Off command).

Note that serial ports on Aux K-NET devices can be used only for outgoing serial commands, in contrast to the Master RC which supports bidirectional serial communication. Therefore, monitor event triggers can only be defined for the serial ports of the Master RC in a certain Room Control setup and not for the serial ports of the Aux K-NET devices.

To add a monitor event trigger:

1. Click the Add Monitor Event button. The Monitor Events Trigger window appears. Select the port, driver and command that will trigger the monitor event actions:

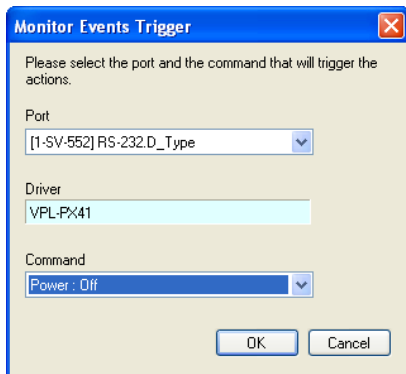


Figure 61: The Monitor Events Trigger Window

2. Click OK.
The Monitor Event (in green) is added to the Available Triggers list:

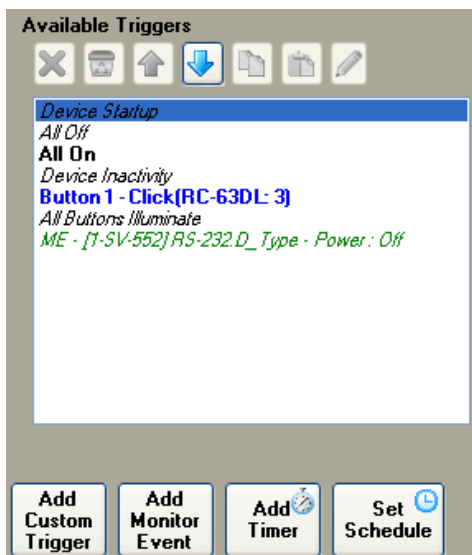


Figure 62: Adding a Monitor Event to the Available Triggers List

You can edit the trigger to respond to a different command by clicking the  button.

3. Add actions to the trigger (see [Section 6.2](#)).

6.7 The Add Timer Trigger

The Add Timer trigger lets the control system wait for a defined time or event to occur and then act accordingly.

6.7.1 Power ON Example

In the following example, button 3 on the **RC-63DL** is used to turn the projector ON. If after sending the power ON command no suitable reply is received from the projector during the selected 5-second time period, the Timer trigger is executed (displaying some type of a visible alert to the user or resending the ON commands, as defined by the user).

If a suitable reply is received within the 5-second time period, it will trigger a predefined Monitor Event action list which stops the Timer trigger (see [Figure 63](#)) and prevents the alert or error from being sent.

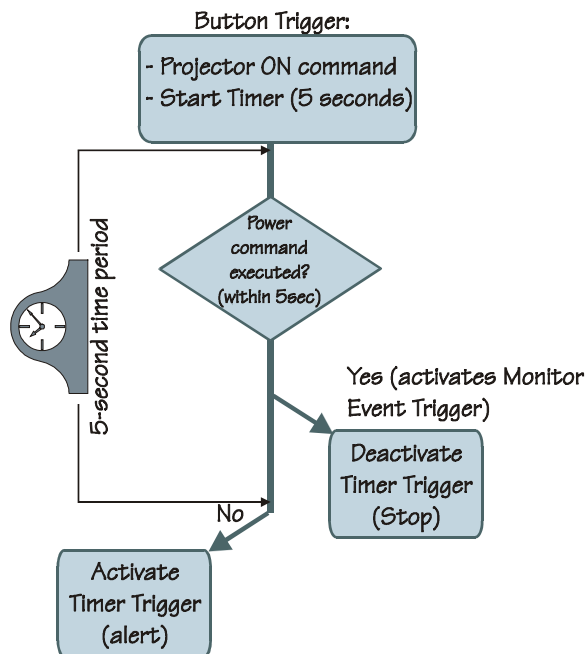


Figure 63: Timer Trigger Flowchart – Power ON Example

This setup includes three simple steps:

Step I: Define the Timer Trigger

Step II: Define the Button trigger (which includes the Timer Trigger Start state)

Step III: Define the Monitor Event Trigger (which includes the Timer Trigger Stop state)

Step I: Define the Timer Trigger

1. Click the Add Timer button.

The Timer Trigger Name window appears. Type the Trigger name (for example, PRJON):

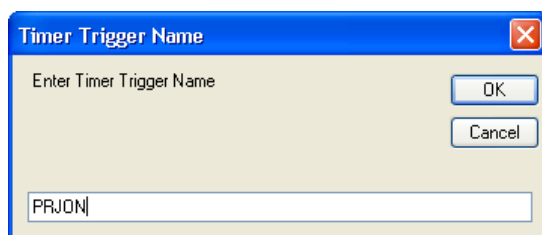


Figure 64: The Timer Trigger Name Window (Power ON)

2. Click OK.

The Timer trigger appears (in red) in the available triggers list:

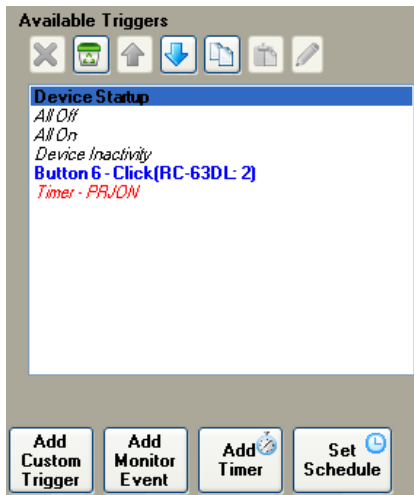


Figure 65: The Timer Trigger in the Triggers List

3. Set the timer timeout to 5 seconds¹:

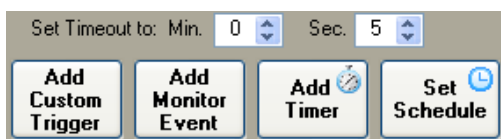


Figure 66: Set the Timeout

4. Add the following actions² representing a visible error message (see [Section 6.2](#)):

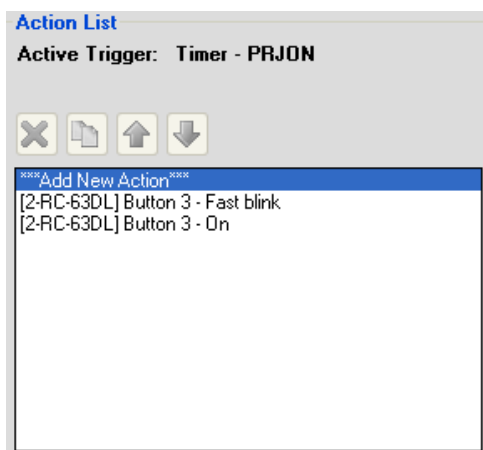


Figure 67: Timer Trigger Action List

Step II: Define the Button Trigger

5. Define a Button trigger, Button 3 - Click (see [Section 6.8](#)).
6. From the Action Type list select Port Command and add the projector power ON command:

¹ 5 seconds is a sufficient time for the command to be executed

² Button 3 blinks in red for 5 seconds (to indicate a problem) and then illuminates in green

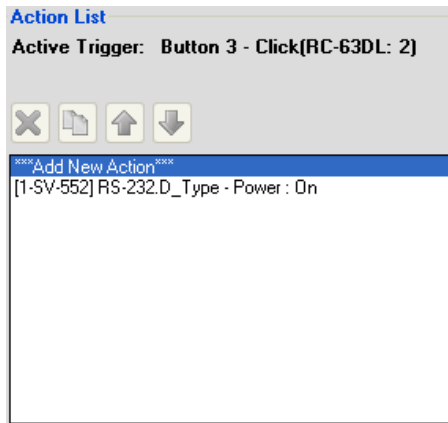


Figure 68: Projector Power ON Command in the Button Trigger Action List

7. From the Action Type list select Timer Start/Stop and select the relevant Timer Trigger (in this example, Timer - PRJON):

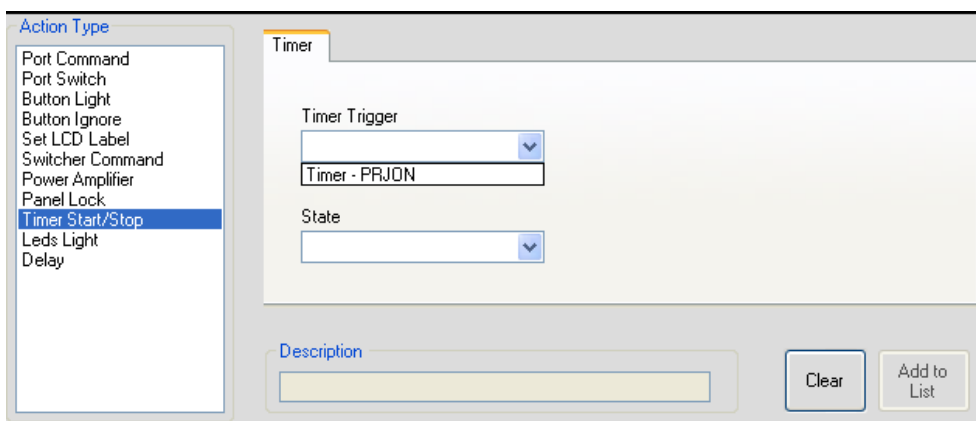


Figure 69: Selecting the Timer Start/Stop Action

8. Select Timer Trigger State Start and click Add to List:

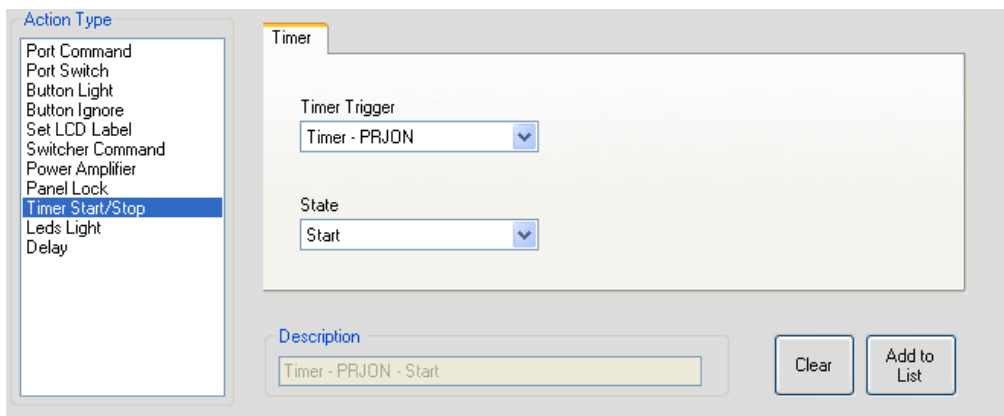


Figure 70: Selecting the Timer Start/Stop Action (Start State Selected)

The button trigger includes powering ON the projector and starting the Timer trigger. The Timer trigger actions will be executed within 5 seconds unless they are interrupted by the monitor event.

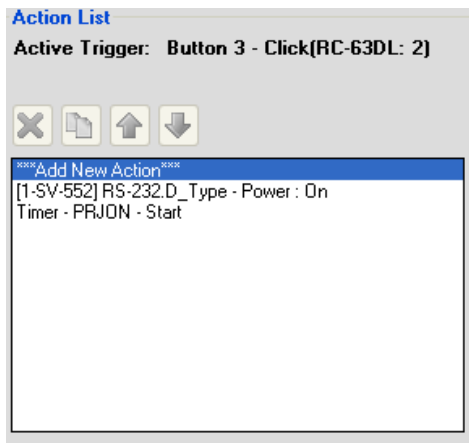


Figure 71: Active Button Trigger Action List

Step III: Define the Monitor Event

9. Add a monitor event trigger and select the ON reply from ON command:

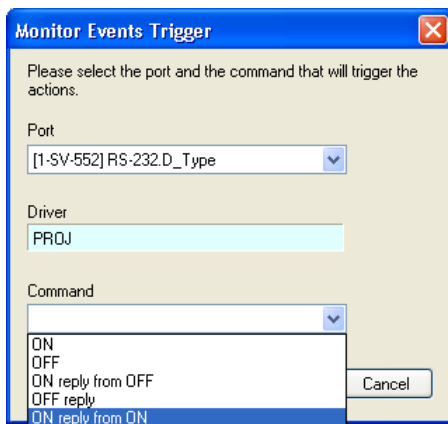


Figure 72: Add the Monitor Event

Once the projector power is ON, the ON reply from ON activates the monitor event action(s):

10. Add the required action to the trigger (Stop):

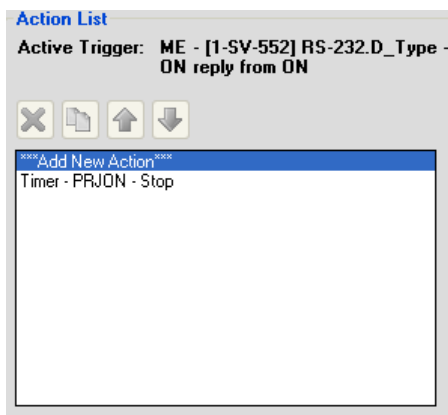


Figure 73: Monitor Event Action List

Once the projector replies, the monitor event command is executed, the timer trigger is stopped and normal operation is carried on.

The command list, shown in [Figure 72](#), includes "ON reply from OFF". In some cases, the AV device will reply differently to the same question, depending on its state. When building timers combined with monitor event structures, be certain to take into account the various replies that might come back from the AV device and handle each one of them with an appropriate Monitor Event trigger.

6.7.2 System Inactivity Example

In this example, the Timer trigger is used to perform a sequence of actions if no signals are fed into the AV room system for a predefined time period (for example, 20 minutes, see [Figure 74](#)). A switcher (for example – the Kramer **VP-411DS**) will send out a dedicated serial command once all PC sources are disconnected. We will use this command to trigger a 20 minute timer. Each action list will start with a command to stop this timer. In the System Inactivity timer we will shut down the display device and perform other shut off tasks.

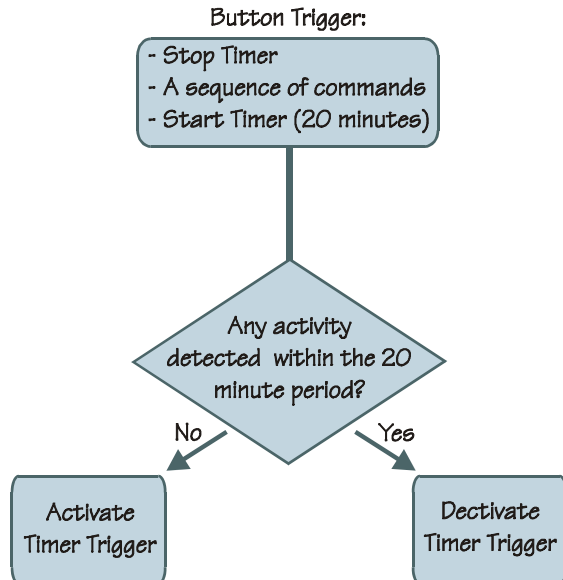


Figure 74: Timer Trigger Flowchart – Inactivity Example

To indicate inactivity, you have to add a “Stop” trigger prior to the sequence of actions and a “Start” trigger upon completion of the actions sequence.

This setup includes two steps:

Step I: Define the Timer Trigger (which will be used for all the triggers)

Step II: Define the Button (and other) triggers

Step I: Define the Timer Trigger

1. Click the Add Timer button.

The Timer Trigger Name window appears. Type the Trigger name (for example, System inactivity):

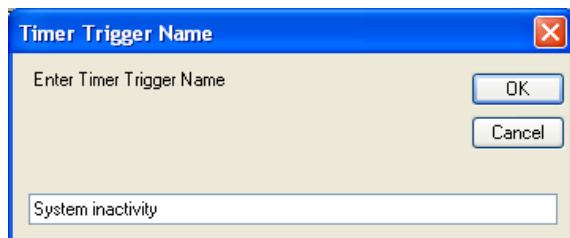


Figure 75: The Timer Trigger Name Window (Inactivity)

2. Click OK.

The Timer trigger (in red) appears in the available triggers list:

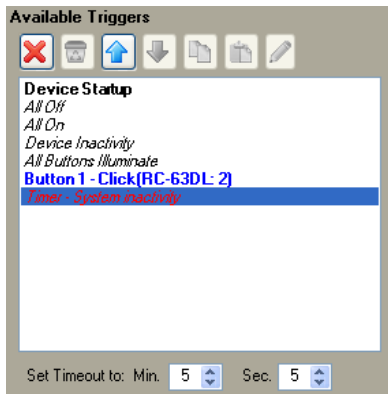


Figure 76: The Timer Trigger in the Triggers List

3. Set the timeout to 20 minutes¹:



Figure 77: Set the Timeout

4. Add the following actions² (see [Section 6.2](#)):

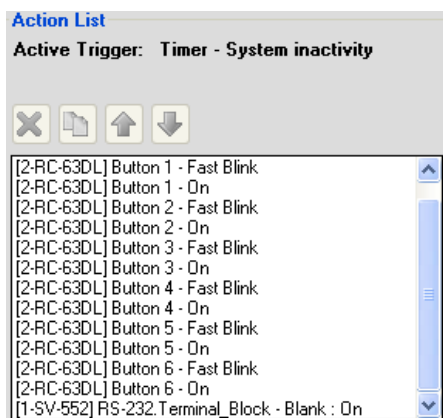


Figure 78: Timer Trigger Action List

Step II: Define the button (or other) Trigger

5. Select a trigger from the Triggers list (for example, Button 1):



Figure 79: Button 1 Action List

¹ Or any other preferred time period

² You can also add other actions, such as turning the lights off, powering down the projector, and so on

6. Add the Stop Timer trigger:

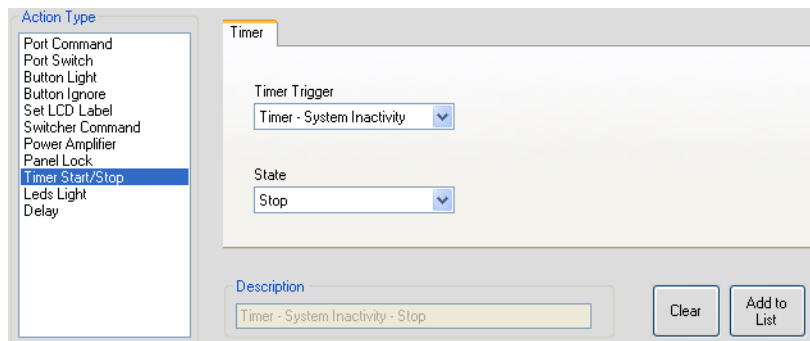


Figure 80: Add the Stop Timer Action

7. Move the Stop Timer trigger before the sequence of actions for this trigger:

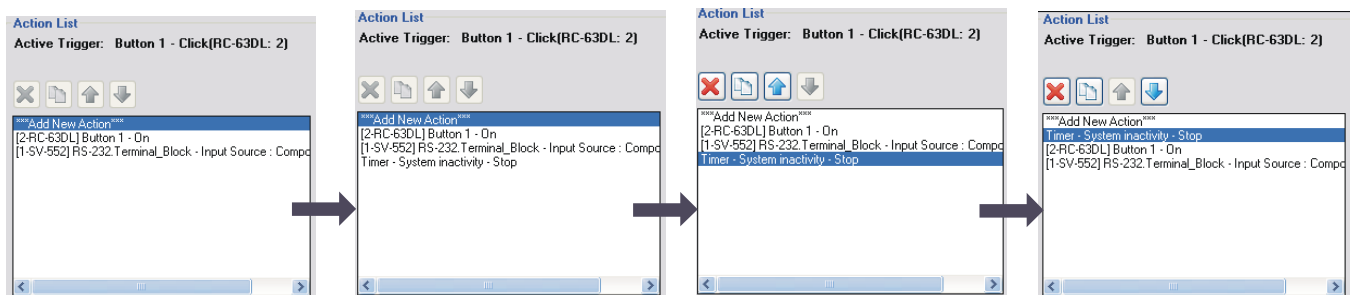


Figure 81: Move the Stop Timer Action

8. Add the Start Timer trigger:

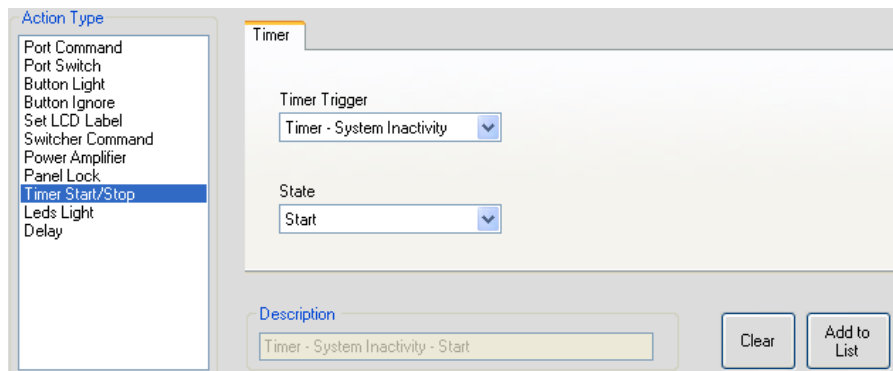


Figure 82: Add the Start Timer Action

9. [Figure 83](#) shows the Button 1 trigger action list:

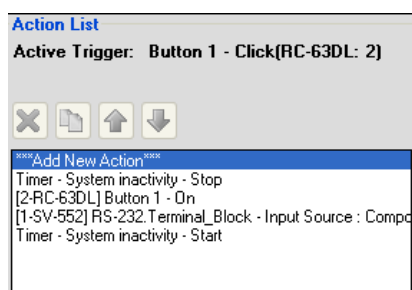


Figure 83: Button 1 Action List with Timer Triggers

10. In the same way, you can add the Stop and Start actions to each trigger.

Adding the Stop action prior to the actual action list, stops the System inactivity trigger.

The Start action that follows the action sequence starts the 20 minute timer and will be active until a button will be pressed or a trigger activated within the 20 minute period.

6.8 The GPI/O Trigger

The GPI/O (General Purpose Input/Output) port can be configured via the K-Config software. Using GPI/O, you can select a wide range of states that can trigger a series of actions, for example, when an alarm is set or if the room temperature exceeds a certain value.

Only GPI/O ports on the Master RC can be used in the Room Control setup. Once the Master RC is set, the GPI/O trigger button appears:

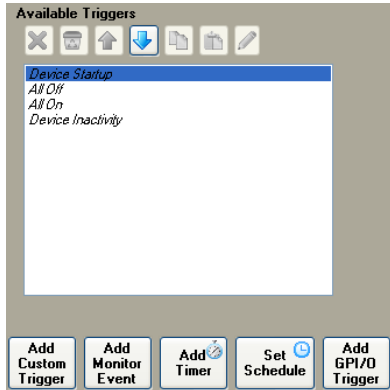


Figure 84: The Add GPI/O Trigger Button

The GPI/O functionality is defined in the port manager as follows (see [Figure 85](#)):

- Analog input, digital input and digital output
- With or without the internal pull-up¹ resistor
- Threshold setup

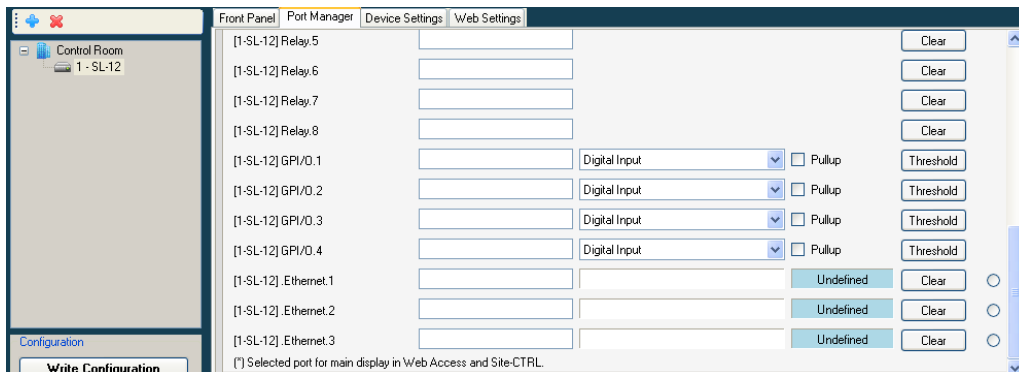


Figure 85: Selecting GPI/O via the Port Manager

To set GPI/O, do the following:

1. In the Control Room area, select the Master RC that includes the GPI/O feature (for example, **SL-12**).
2. Select the Port Manager tab.
3. In the desired GPI/O port, set the functionality of the port and name the port in the description box (for example, Temperature High for Digital Input, see [Figure 86](#)).

You have to set the port functionality before you add commands to action lists.

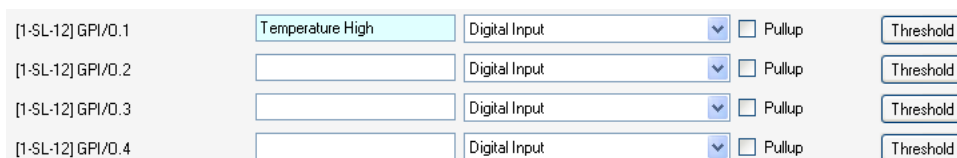


Figure 86: Selecting Digital Input for a Temperature Sensor

¹ In the K-Config software this term is referred to as Pullup (as opposed to “pull-up”)

6.8.1 Digital Input

The digital input reads the digital input of an external sensor device that is connected to the GPI/O port, and can be defined:

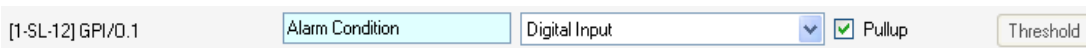
- With Pullup: the system can detect either a short circuit (activating the Hi to Lo trigger – closed circuit) or no short (activating the Lo to Hi trigger – open circuit) using the internal pull-up resistor. The threshold levels are not relevant in this case and will be automatically adjusted and locked to their appropriate levels
For example, an alarm closing a circuit that activates a series of actions
- Without Pullup: the system detects the voltage levels and translates them to High or Low according to the user defined threshold levels.
For example, a high temperature alarm that exceeds the maximum voltage threshold

Setting the Digital Input

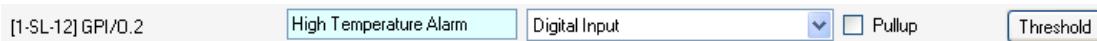
In this example, an alarm setting causes a short circuit, thus activating a trigger.

To set the trigger:

1. Define the GPI/O in the port manager.
Check Pullup for short circuit detection; the threshold is set automatically (skip step 2):



Do not check Pullup for voltage level detection; the threshold to be set by the user (proceed to step 2):



2. Define the GPI/O threshold (minimum from 0 and maximum up to 30V) according to the indication set by the device¹.

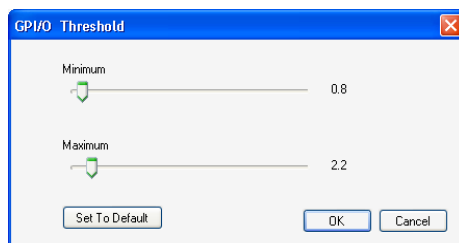


Figure 87: GPI/O Threshold Window

3. Click the Add GPI/O Trigger (in the Trigger area) and select the GPI/O port (GPI/O 1 or 2 in this example).
The following window appears:

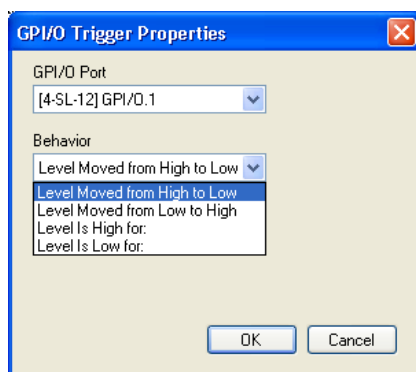


Figure 88: GPI/O Trigger Properties Window for Digital Input

¹ Other voltages will not activate the trigger

4. Select the condition for activating the trigger:

Level moved from High to Low	Closing the circuit ¹ or the voltage exceeding its maximum defined value ² activates the trigger immediately
Level Moved from Low to High	Opening the circuit ¹ or the voltage decreasing below its minimum defined value ² activates the trigger immediately
Level is High for:	Circuit remains open ¹ or the voltage exceeding its maximum defined value ² and staying there for a set period of time (see Figure 89); the trigger is activated on the first occurrence
Level is Low for:	Circuit remains closed ¹ or the voltage decreasing below its minimum defined value ² and staying there for a set period of time; the trigger is activated on the first occurrence

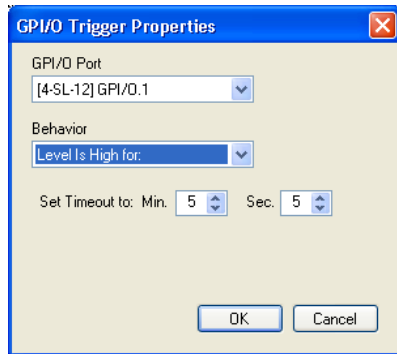


Figure 89: GPI/O Trigger Timeout (Digital Input)

5. Set the Timeout and click OK.

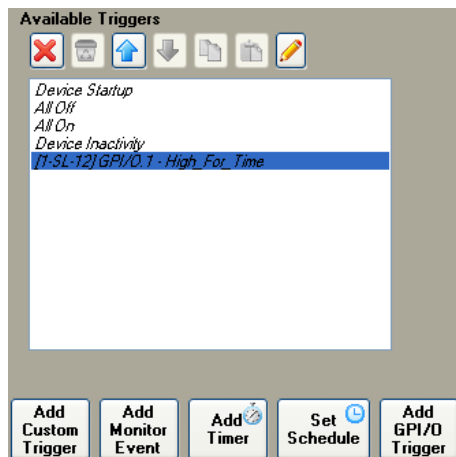
6. Select the GPI/O trigger from the list of available triggers (see [Figure 90](#)):

Figure 90: Selecting the GPI/O Trigger from the Available Triggers List

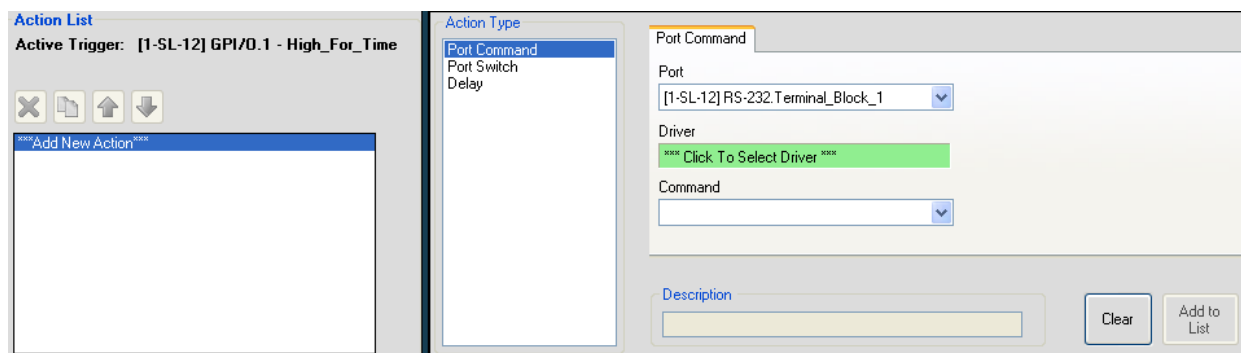
7. Add actions to the new trigger (see [Figure 91](#)).

Figure 91: Adding Actions to the GPI/O Trigger

¹ Pullup checked

² Pullup not checked

6.8.2 Digital Output

The digital output function is defined by the pull-up setup:

- Without Pullup: The port will act as a solid state relay (open/close functions)
The GPI/O maximum voltage is 30V DC and the maximum current is 50mA
- With Pullup: the port can be used as a TTL positive logic output (open: ~2.4V;
closed:~0.2V)

Setting the Digital Output

Define the GPI/O in the port manager:

Once defined as Digital Output, the GPI/O port will appear in Port Switch ->port list, and can be used like any other relay:

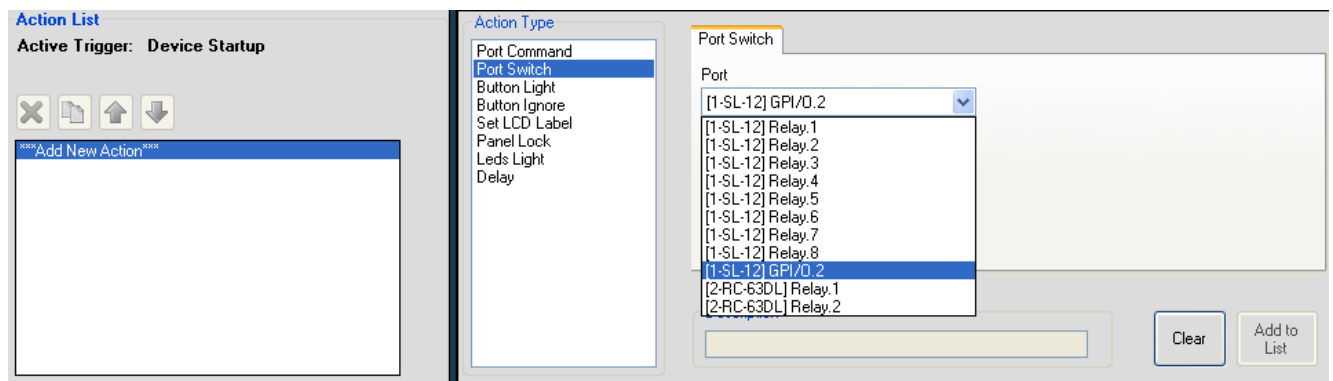


Figure 92: The GPI/O Defined as Digital Output

6.8.3 Analog Input

The analog input accepts an analog signal from an auxiliary device:

The pullup and threshold features are disabled.

The trigger is activated once when the voltage is within a certain range of voltages.

To add a GPI/O Trigger:

1. Click the Add GPI/O Trigger button.
The following window appears:

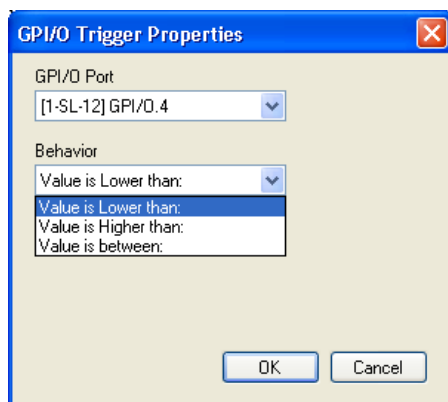


Figure 93: The GPI/O Trigger Properties Window

2. Select the trigger behavior:

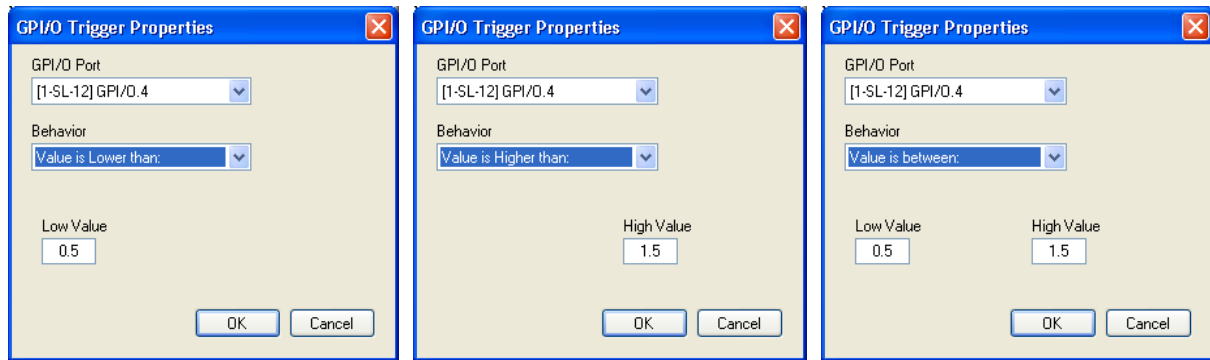


Figure 94: Select the Behavior of the Digital Input Trigger

You can now add actions to this trigger (see [Section 6.2](#)).

6.9 The Button Trigger

A button trigger is created when a selected button is pressed.

To create a button trigger, do the following:

1. In the Control Room tree, select the machine to which you want to assign a button trigger¹ (for example, the **RC-63A**):

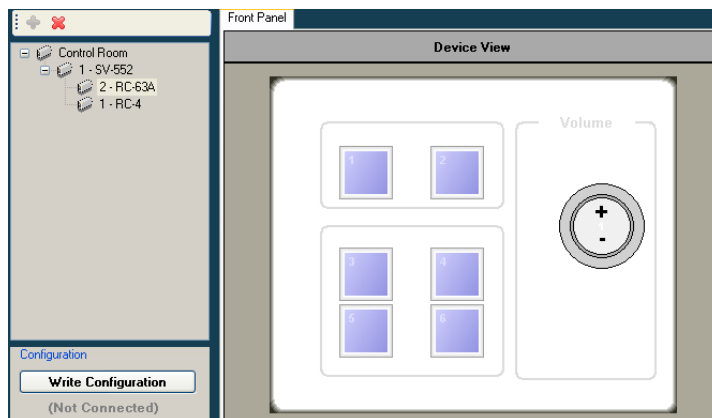


Figure 95: Selecting the Device from the Control Room List

2. Click a button from the Device View to which you want to assign a trigger (for example, button 2):

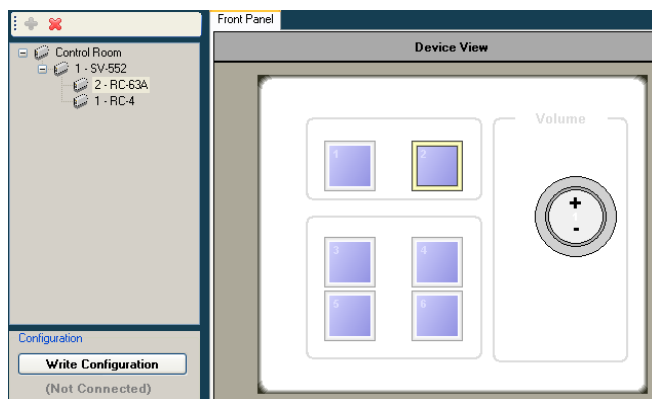


Figure 96: Selecting a Button

The button's frame color changes and the Button Trigger Properties window appears:

¹ Applicable buttons are colored light blue

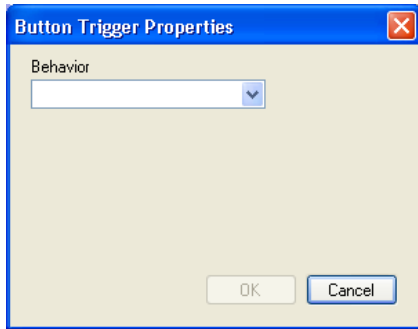


Figure 97: The Button Trigger Properties Window

3. Select the type of behavior (see [Section 6.9.1](#)):

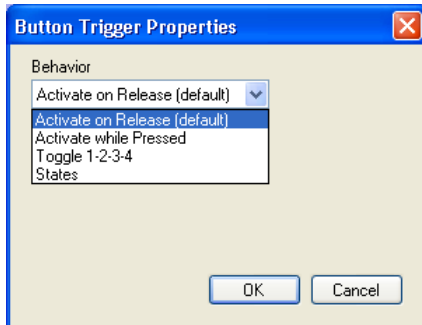


Figure 98: Select the Button Behavior

4. Add actions to the trigger (see [Section 6.2](#)).

6.9.1 Button Behavior

You can select one of four button behavior options:

- **Activate on Release:** activates the trigger upon release
- **Activate while Pressed:** the trigger is activated again and again as long as the button is pressed. You can set the trigger delay time (Start After...), as well as the repetition delay time (Repeat Every...), see [Figure 99](#)

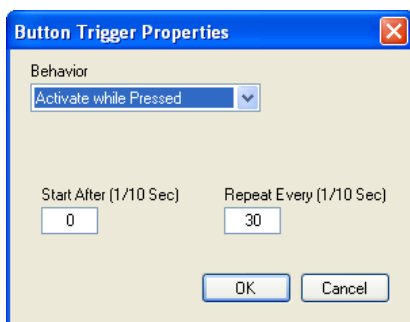


Figure 99: Button Trigger Properties Window (Activate while Pressed)

- **Toggle 1-2-3-4:** select the number of toggle states (from 2 to 10). With each press of the button, the next toggle is activated¹. When in the last toggle, the next press of the button will activate the first toggle once again.

It is recommended that you assign a button color command to each trigger so that you can identify each toggle by the color of the button. [Figure 100](#) shows the toggle behavior Window:

¹ Upon completion of that toggle

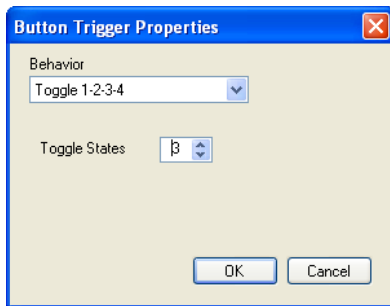


Figure 100: Button Trigger Properties Window (Toggle 1-2-3-4)

When selecting the Toggle option, a sequence of actions is written for each toggle, as appears in the Action List:

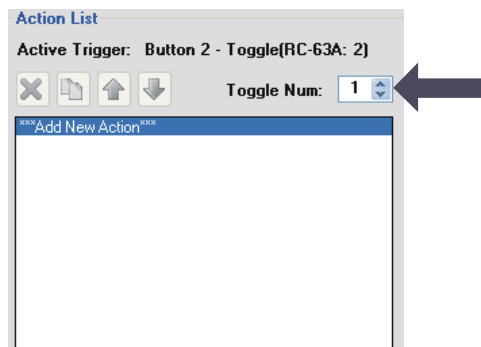


Figure 101: The Toggle Number in the Action List

- **States:** select the number of states from 2 to 4

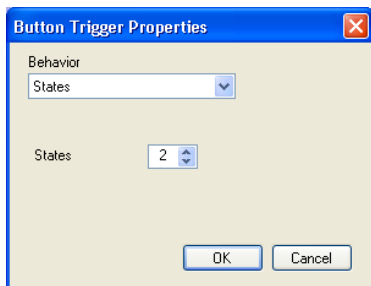


Figure 102: Button Trigger Properties Window (States)

Select the States button behavior and write a sequence of actions for each state, as appears in the Action List:

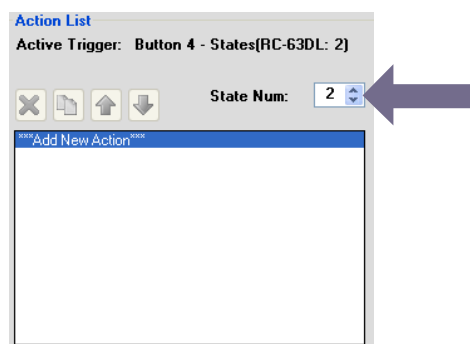


Figure 103: The State Num in the Action List

Each state is independent of the other. The state behavior lets you determine which sequence of actions (as defined for each state) will be carried out the next time this button is pressed. [Section 6.11.11](#) describes how to use the State action.

6.10 The Knob Turning Trigger

A Knob Turning trigger is created when clicking a digital volume button (for example, the **SL-14RC** volume knob) + (clockwise rotation) and/or – (counterclockwise rotation):

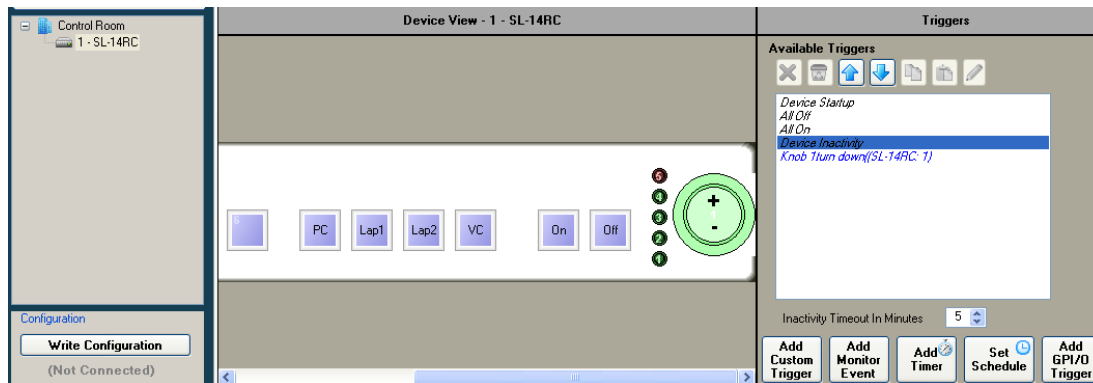


Figure 104: Knob-Turning Trigger

This trigger (after adding actions) will be activated when turning the volume button up or down (Knob Turn down in [Figure 104](#)).

This type of knob trigger is especially useful when trying to control audio amplifiers or similar devices using serial command tables (see [Section 9.1.3](#)). Simply add the command table to the action list that is assigned to the knob.

Note – when controlling the built-in amplifier of the **SV-551/SV-552** via the digital knob of the **RC-63D** series or **RC-53D** series units, you do not need to configure the digital knob behavior via the knob turning trigger. All you have to do is to associate the digital audio knob of the user interface unit with the **SV-551/SV-552** audio amplifier on their port manager tab.

6.11 Action Type

The Action Type area automatically lists the actions available for the control room (see [Table 2](#)) tree built in the previous steps. The action types let you assign the specific actions to a trigger, change a current action in a trigger, and set a delay time for carrying out the trigger.

This section describes the different action types.

6.11.1 The Port Command Action Type

The Port Command actions refer to the RS-232, RS-485, IR out ports and Ethernet (when defined for Master RCs in the Port Manager, see [Section 5.1.1](#)). The selected driver commands appear in the Command drop-down list.

Note: when selecting Port Command, the first port of the Master RC will be shown on the Port drop down list. Even if this is the port you want to use, you have to select it in the drop down list.

[Figure 105](#) shows the port command actions¹:

Figure 105: Port Commands

6.11.2 The Relay Command (Port Switch) Action Type

[Figure 106](#) shows the available relay port actions (also applicable for GPI/O ports configured as Digital Out):

Figure 106: The Relay Actions (Port Switch)

6.11.3 The Button Light Action Type

[Figure 107](#) shows the available button actions and [Figure 108](#) shows the available button colors for each button:

Figure 107: Button Light Actions

¹ The driver appears automatically if it was predefined via the Port Manager tab. Otherwise, you have to click the Driver area to select the driver for the selected port

Select the button light from the Color Selection Window¹:

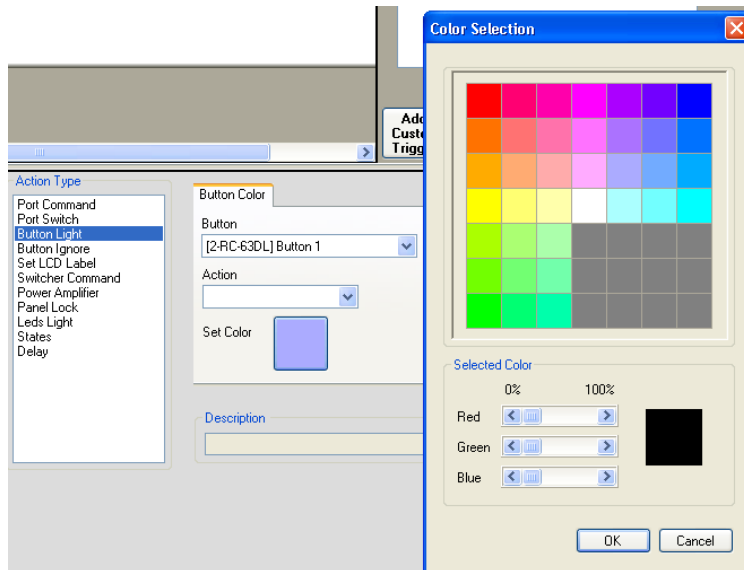


Figure 108: Button Color Selection

Some machines buttons accept a limited selection of colors or are preset to one color (for example, the **RC-53D** or the **RC-2C**).

6.11.4 The Button Ignore Action Type

[Figure 109](#) shows the available button ignore states:

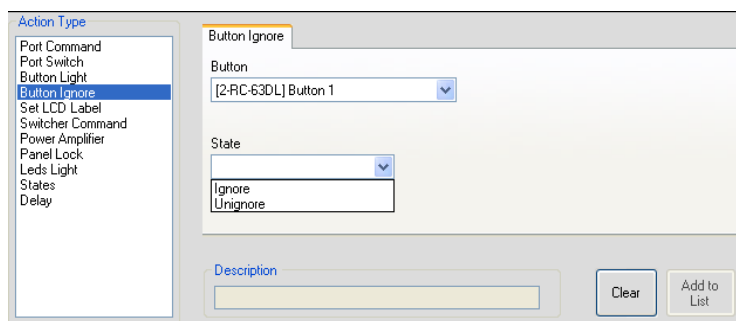


Figure 109: Button Ignore States

Set the selected button state to Ignore to disable it. Unignore enables the button.

For example, disable the source selection button when the projector is OFF; this command will prevent source switching while the projector is OFF.

6.11.5 The Set LCD Label Action Type

The Set LCD Label command lets you type in new text labels to the LCD button labels for the available devices in the control room, see [Figure 110](#):

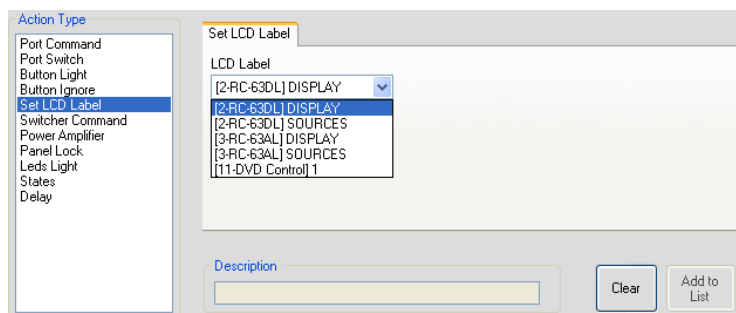


Figure 110: Set LCD Label Text

¹ Not available for the RC-53 Series

6.11.6 The Switcher Command Action Type

The switcher commands let you switch any of the inputs to the output, see [Figure 111](#):

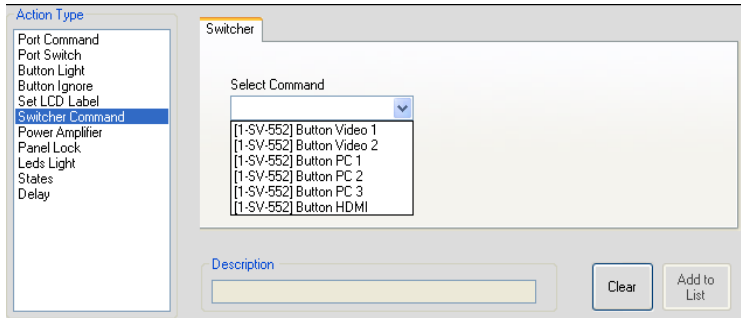


Figure 111: Switcher Commands

6.11.7 The Power Amplifier Action Type

The volume amplifier commands let you mute the audio, turn the volume up or down or set the volume level. For example, [Figure 112](#) shows the Volume Set action:

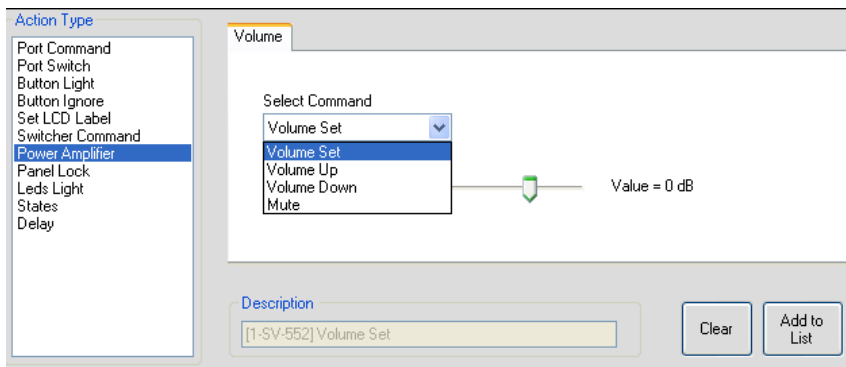


Figure 112: Power Amplifier Commands

6.11.8 The Panel Lock Action Type

The Panel Lock action type lets you select a device in the control room (for example, **RC-63AL**) and then lock or unlock its front panel buttons:

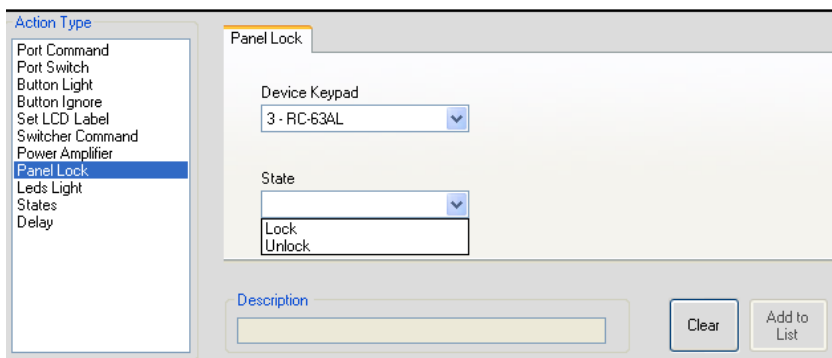


Figure 113: Panel Lock States

Note: When locking a Master unit that is connected to a keypad you can define panel unlock via a different button (for example, lock and then unlock the **SV-551** Master unit via the Button 1 **RC-63AL** keypad).

A locked keypad can be released only via a schedule or a custom macro, or by pressing the keypad sequence PIN code that is defined in the Device Properties (see [Figure 115](#)) dialog box.

If you try to unlock the panel by one of its buttons, the following message appears:

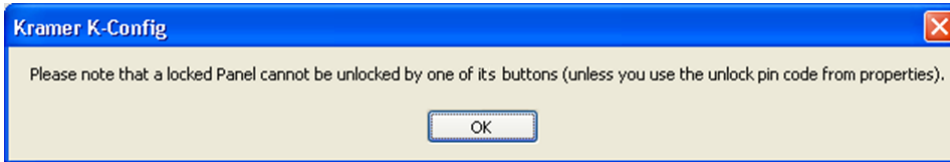


Figure 114: Unlock Message

[Figure 115](#) shows the unlock PIN code:

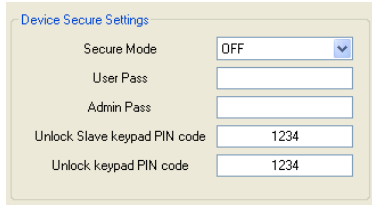


Figure 115: Unlock PIN Code

6.11.9 The Timer Start/Stop Action Type

Once the Timer triggers are defined, the Timer Start/Stop states will appear and will let you start the timer that activates/deactivates the Timer trigger actions, see [Section 6.7](#).

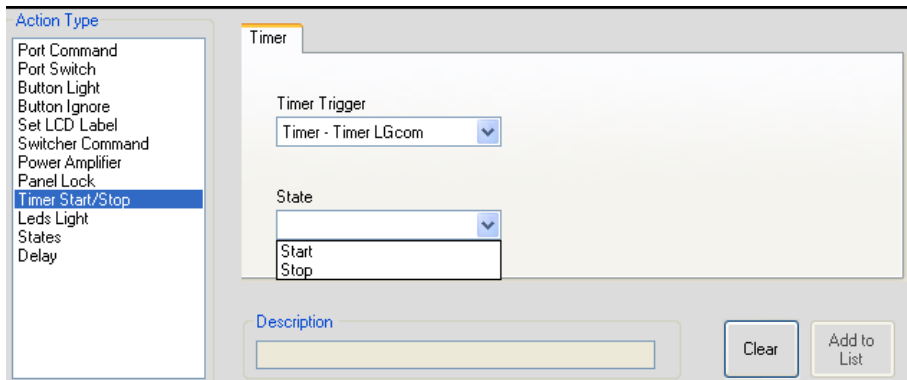


Figure 116: Timer Start/Stop States

6.11.10 The LEDs Light Action Type

The LEDs light (located next to a digital audio knob) states lets you select a device in the control room and set the behavior of the LEDs, see [Figure 117](#).

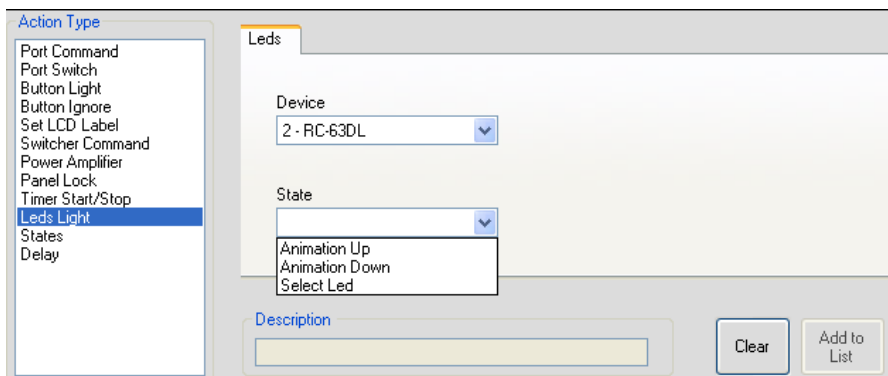


Figure 117: LEDs Light States

You can set the LEDs animation to go up or down or you can set one of the five LEDs to light, see [Figure 118](#).

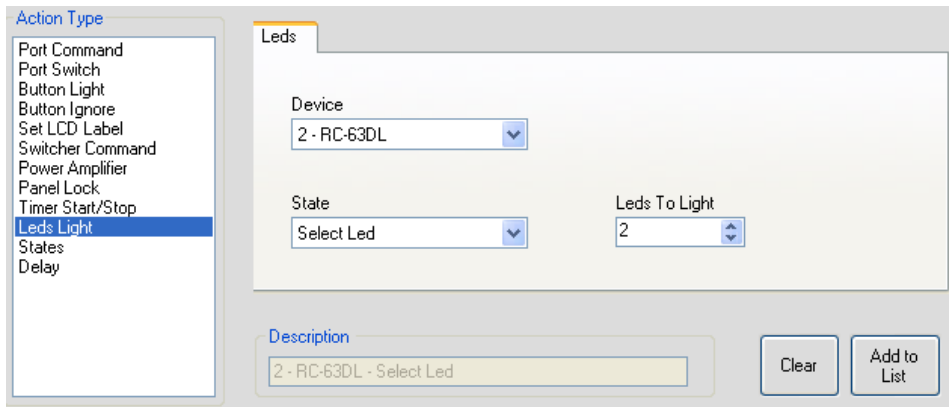


Figure 118: Select LEDs to Light

6.11.11 The States Action Type

The States action type appears in the action type list only after the button behavior is defined as States (see [Section 6.9.1](#)).

The States action type lets you select the state of a button, and by that determine the action list (written for each state) that will be carried out the next time the button will be pressed. Upon system startup, all states and toggles are set to State #1.

In the following example, button 3 behavior includes 4 states:

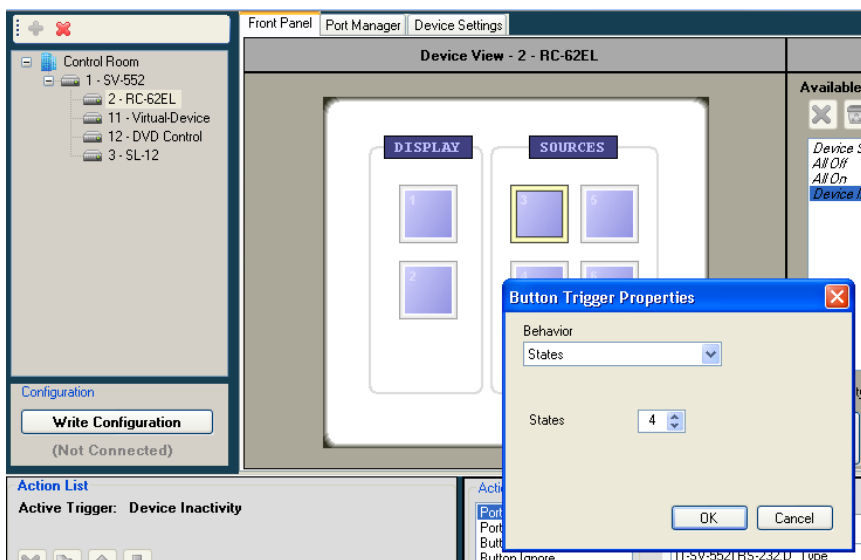


Figure 119: Definition of 4 States

1. Click OK.
Button 3 appears in the Available Triggers list:

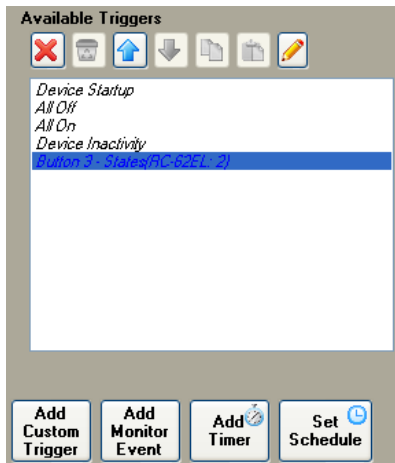


Figure 120: The States Action Type

2. Set the command list for each state:

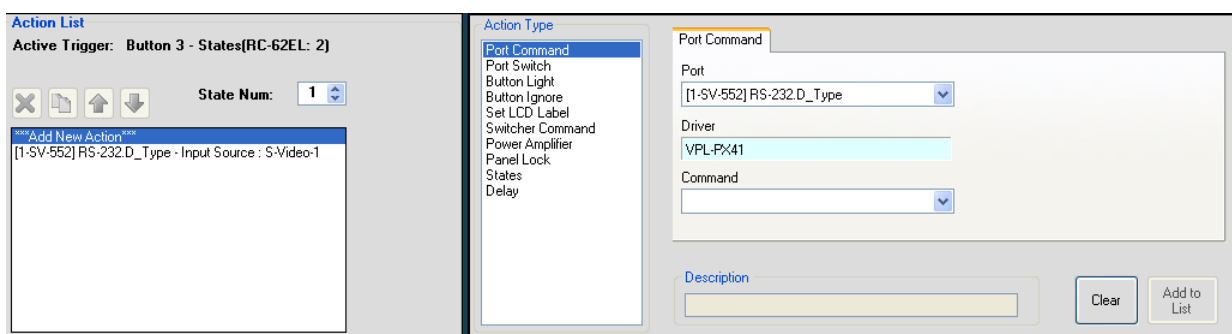


Figure 121: Setting the State Action List

3. Set the next state number and define the action list for that state.

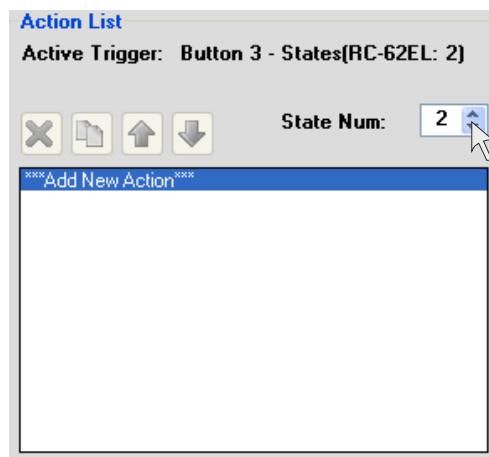


Figure 122: Setting the State Action List

Once the state action lists are defined, you can activate a state via the States action type in other triggers.

For example, when pressing button 1 of the virtual device (see [Figure 123](#)):

- Relay 1 on the SV-552 opens
- Button 3 blinks slowly
- The state 2 of button 3 on the **RC-62EL** is selected, determining the action list that will be carried out the next time button 3 on **RC-62EL** is pressed
- The system waits 10 seconds

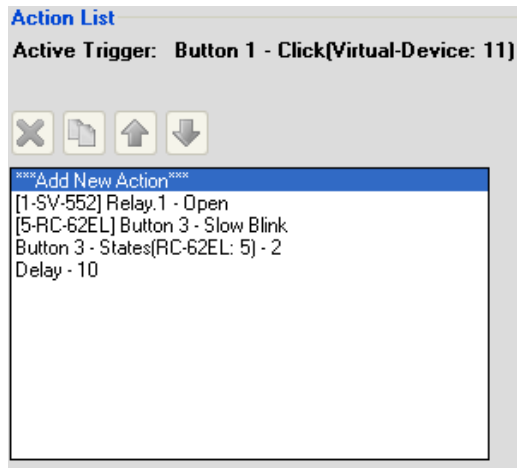


Figure 123: Using States in an Action List

6.11.12 The Delay Action Type

The Delay action type lets you set a delay time of up to 60 seconds between actions (see [Figure 117](#)).



Figure 124: The Delay Action Type

7 Write the Configuration

Once the configuration is ready, you can write it to the device, via the “Write Configuration” button.

Note that:

- In Master-Auxiliaries configurations, the configuration file is always written to the Master
- When using a standalone room controller, the configuration file is written to the room controller

In case you have written a configuration file to a device and it is now connected as an auxiliary device to another master, you have to define the device as an auxiliary device and upload an updated configuration file to the Master.

To write a configuration to the device, do the following:

1. Connect the PC to the Master or the standalone room controller.
2. From the Device menu, select Connect to verify proper USB or LAN connection.
3. If required, from the File menu, select Open Project¹...

The Open window appears (see [Figure 125](#)):

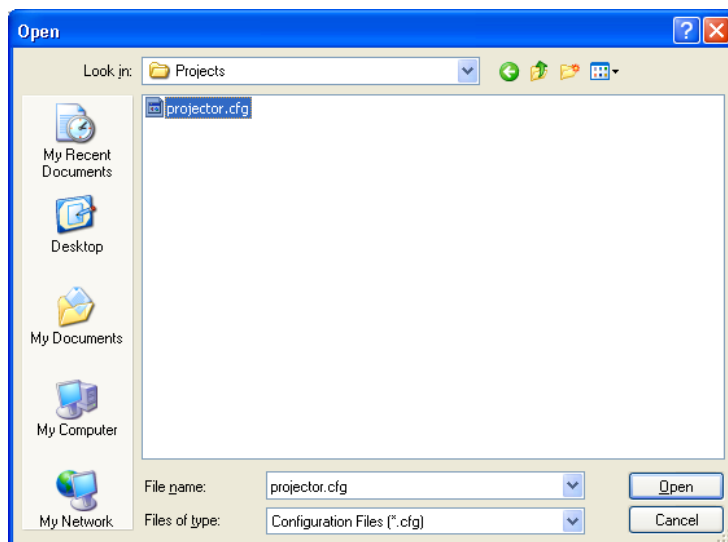


Figure 125: Loading a Configuration

4. Click Open.
5. Click the Write Configuration button² or in the Device menu, click Write Configuration. If the device is not connected to the PC, the Connect window appears.

After connecting the device, the following window appears:

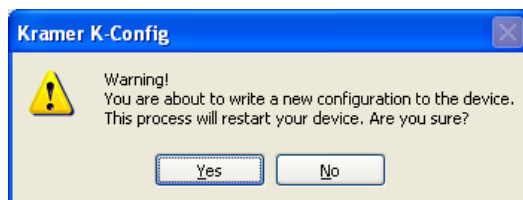


Figure 126: New Configuration Warning Window

6. Click Yes to write the configuration to the device.

¹ Skip this step if you have the desired configuration loaded

² The Write Configuration button is enabled only when the device is connected

8 Set K-NET IDs

In a room setup, the auxiliary devices connected to the Master RC are daisy chained via K-NET and need to be assigned a K-NET ID by K-Config¹.

To set the K-NET ID to an auxiliary device:

1. Right click the required auxiliary device in the Control room area and select Set K-NET ID.
The following window appears:



Figure 127: Configuration Mismatch Warning

2. Connect the auxiliary device directly to the PC (via USB) and then click OK.
The Connect window appears:

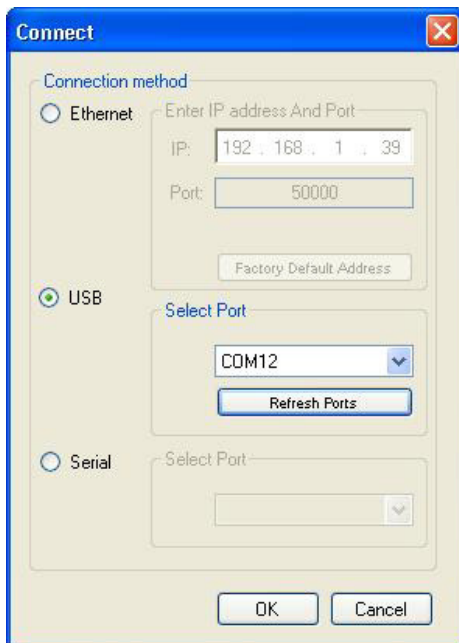


Figure 128: The K-NET ID Connect Window

3. Click OK to connect.
The setting K-NET ID window appears.



Figure 129: Setting K-NET ID

4. Click OK to set the ID number.

¹ The ID number of the Master RC is always 1 and the ID numbers allocated to the Virtual devices are 11 and 12

9 The Driver Manager

This section defines the Driver Manager window and describes its features.

[Figure 130](#) and [Table 9](#) define the Driver Manager window:

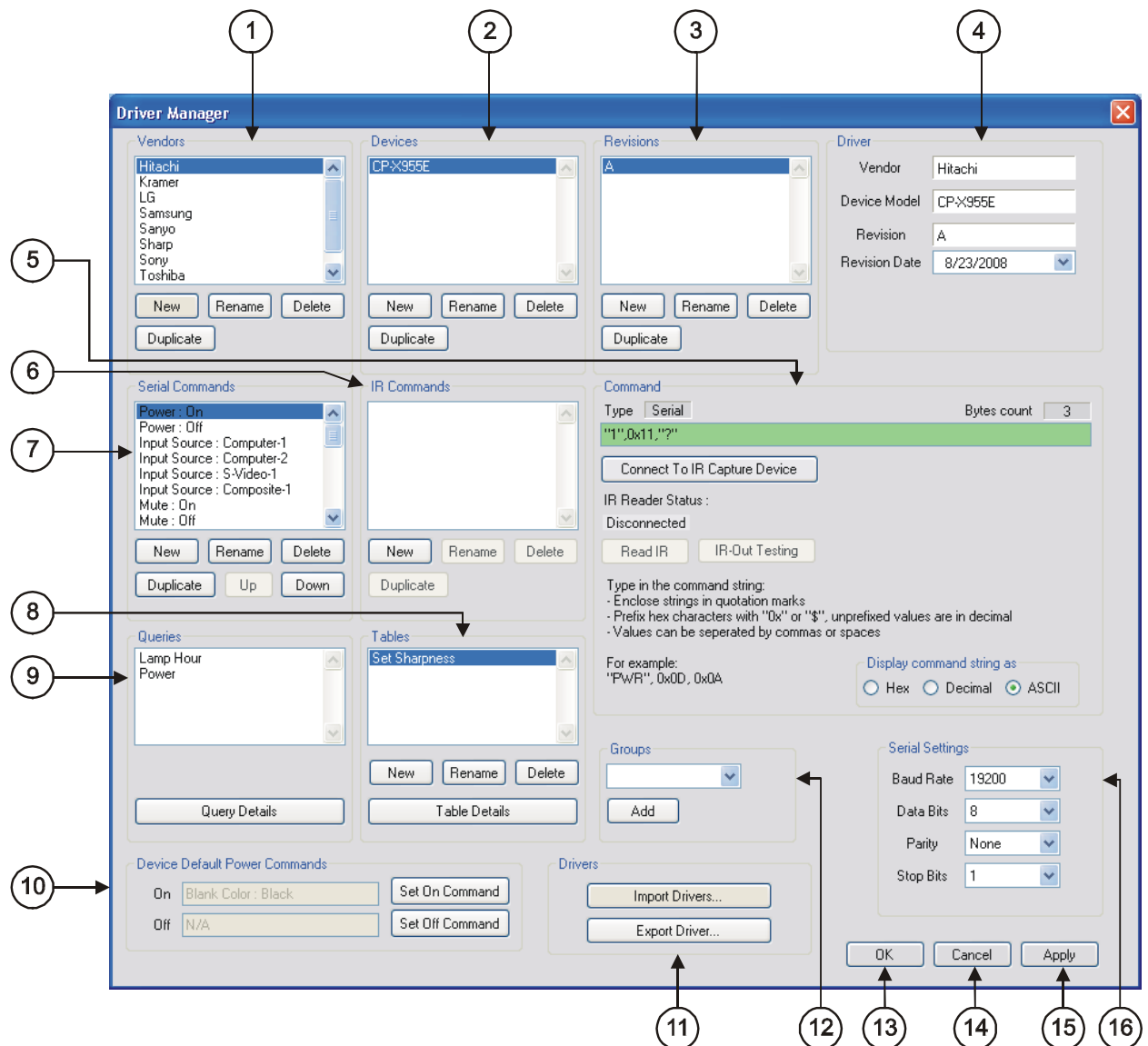


Figure 130: The Driver Manager Window

Table 9: Driver Manager Window Features

#	Feature	Function
1	Vendors Area	Lists the available vendors New: click to enter a new vendor name manually Rename: click to rename the vendor name Delete: click to erase the selected vendor Duplicate: click to duplicate the selected vendor (you can then rename it)
2	Devices Area	Lists the devices of a selected vendor (in the Vendors area) New: click to enter a new device name manually Rename: click to rename the device name Delete: click to erase the selected device Duplicate: click to duplicate the selected device
3	Revisions Area	Lists the revision of a selected device, as per the user preferences. It serves no internal K-Config function but can be used to distinguish between several drives used for the same AV device (with and without queries, for example) New: click to enter a new revision manually Rename: click to rename the revision number Delete: click to erase the selected revision Duplicate: click to duplicate the revision
4	Driver Area	Displays the selected <i>Vendor</i> , <i>Device Model</i> and <i>Revision</i> . Lets you set the <i>Revision Date</i>

#	Feature	Function
5	Command Area	Displays the command type and command string
6	IR Commands Area (see Section 9.1.2)	Lists the IR command names for a specific device New: click to enter a new command name manually Rename: click to rename the Command editing tab Delete: click to erase the selected command Duplicate: click to duplicate an IR command
7	Serial Commands Area (see Section 9.1.1)	Lists the outgoing (for control over) and incoming (for Monitor Events) serial command names for a specific device New: click to enter a new command name manually Rename: click to rename the Command editing tab Delete: click to erase the selected command Duplicate: click to duplicate a serial command Up/Down: move a command up or down , respectively Right click a serial command to color it red, green, blue or black (this is convenient for grouping command types), see Figure 133
8	Tables (see Section 9.1.3)	Displays the list of command tables
9	Queries	Displays the Queries list. Select a query and click Query Details to display the details (see Section 9.1.3)
10	Device Default Power Commands Area	Set the command that will execute the projector's Power off and Power On command in the Web pages (in the Web Access Devices tab). Select a Serial or IR command form the lists, and then press "Set command" On or Off to assign
11	Drivers Area	Import Drivers...: Click to import one or more driver files Export Driver...: Click to export a driver file
12	Groups Area	Include a set of serial or IR commands into a group that will be displayed as such in the Web pages
13	Serial Settings Area	Select the serial settings for the device: the <i>Baud Rate</i> , the <i>Data Bits</i> , the <i>Parity</i> and the <i>Stop Bits</i>
14	OK Button	Apply changes and close window
15	Cancel Button	Close window without applying changes
16	Apply Button	Apply changes without closing the window

9.1 Creating a Driver Command

You can write the following types of commands:

- Serial commands (see [Section 9.1.1](#))
- IR commands (see [Section 9.1.2](#))
- Serial range commands (see [Section 9.1.3](#))

9.1.1 Creating a Serial Command

The serial commands can be sent via RS-232 and RS-485 ports. To create a new serial command for the selected device, click the New button in the Serial Commands area. The New Serial Command window appears. Type the new command name:

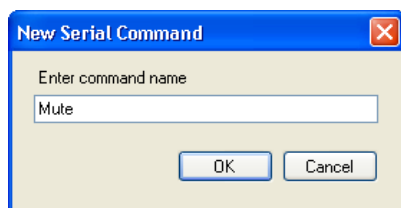


Figure 131: New Serial Command Window

Write the serial command¹, as illustrated in [Figure 132](#).

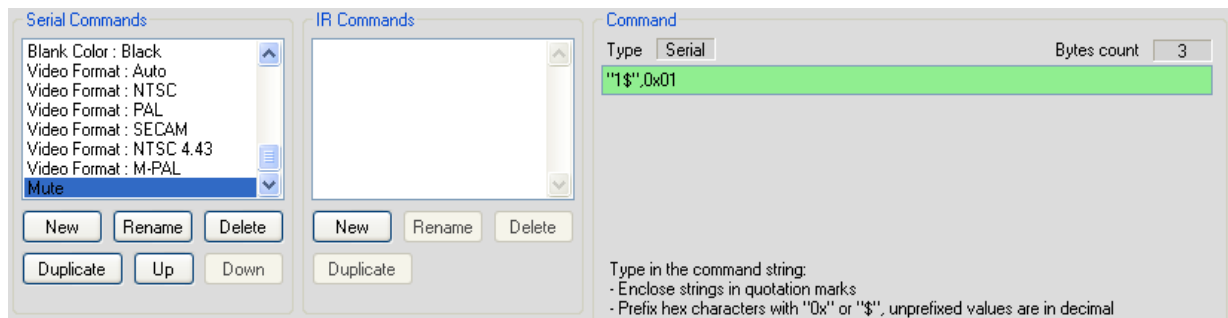


Figure 132: Writing a Serial Command

When writing a serial command:

- Enclose the strings in quotation marks (for example, "MUTE OFF")
- Prefix the hex characters with 0x or "\$" (for example, 0x0D), unprefixed values are in decimal (for example, 13)
- String and byte values should be separated by commas or spaces (for example, "BRIGHT DEC",0x0D)
- If a protocol command states Carriage Return (<CR>) and/or Line Feed (<LF>) following the command line, add 0x0D or 0x0A, respectively, outside the command quotation marks, separated by a comma.
For example, "PWR" <CR> <LF> should appear as "PWR",0x0D,0x0A

You can color the serial commands by right-clicking them (red, blue, green or the default black), making it convenient to group them and to distinguish between outgoing and incoming commands (see [Figure 133](#)).

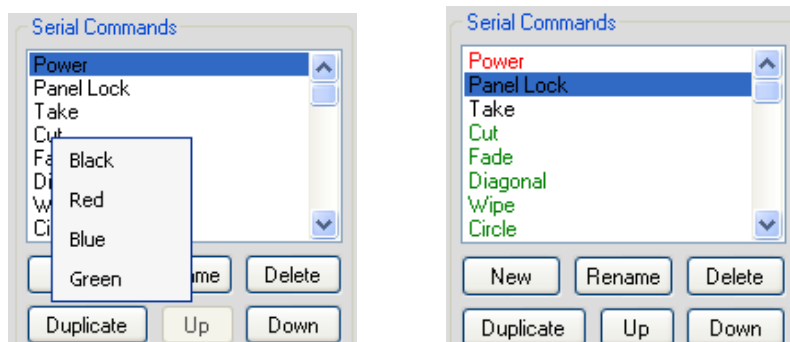


Figure 133: Coloring the Serial Commands

By default, protocol commands for Kramer machines are colored black for outgoing commands, red for feedback and green for queries

¹ Note that if the serial command appears with a pink background, the command format is incorrect

9.1.2 Creating an IR Command

To create IR commands for a selected device, connect the **FC-29** or RC device (with IR learning capability) directly¹ to your PC via the USB connector and use the remote control transmitter² to learn its IR commands.

When an **RC-6x** (in the auxiliary configuration) is connected, although it is directly connected, it should remain in the auxiliary state because if it is defined as master, it will not function when reconnected to the Master room controller.

To keep the **RC-6x** in the auxiliary configuration:

1. Connect the **RC-6x** directly to the USB connector. The following window appears:

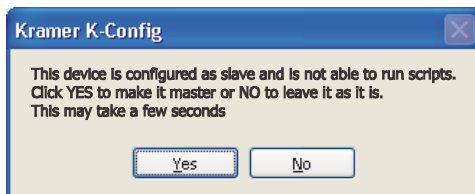


Figure 134: Setting the Device as an Auxiliary Device

2. Click NO to keep the device in the auxiliary configuration.
3. Complete the connection of the device via the USB port:

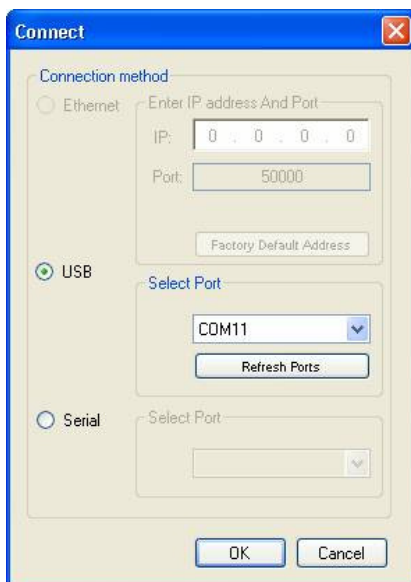


Figure 135: Connect to IR Capture Device Window

If you have a problem connecting to the USB port, make sure that you have installed the Kramer USB driver (see [Section 2.2](#)).

¹ Whether it is defined as an auxiliary device or a standalone Master

² Of the machine from which you want to learn the IR commands. For example, use the DVD remote control transmitter to write the DVD commands to the driver manager

To create a new IR command for the RC device:

1. Click the New button in the IR commands area to type the new command name. The following window appears:

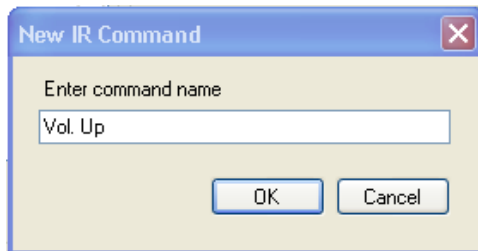


Figure 136: New IR Command Window

2. In the Command area, click the Connect to IR Capture Device button, select the port and click OK.
3. Click the Read IR button to read the command.
The command area displays the following message: “Ready for reading IR command. Please send IR command to the device”.
4. Press the appropriate button on the remote control transmitter.
The command area displays the following message: “IR command reading”.
The IR command appears, as illustrated in [Figure 137](#):

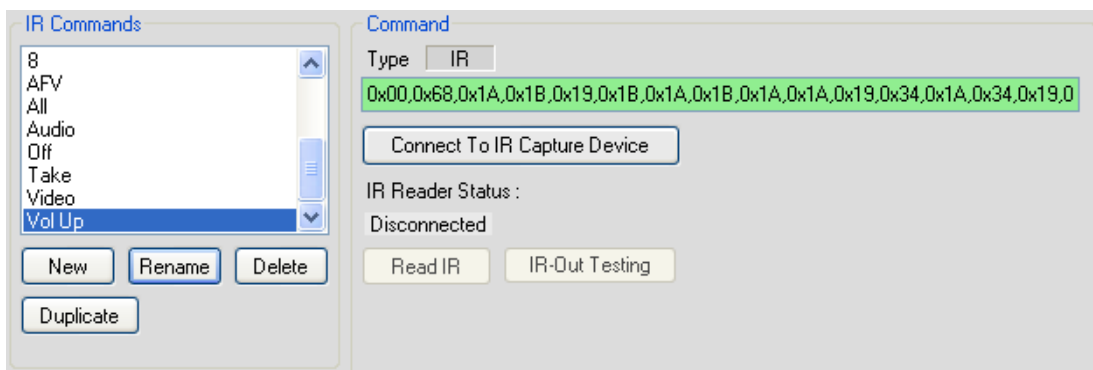


Figure 137: IR Command Area Window

You can test the IR command by connecting the RC unit IR terminal block connectors to the device via the IR emitter, and then clicking the IR-Out Testing button.

[Figure 138](#) shows how to connect the IR emitter¹. The white striped side connects to IR OUT, the black side connects to the Ground, and the LED Emitter Shell is affixed to the IR sensor window with the adhesive layer.

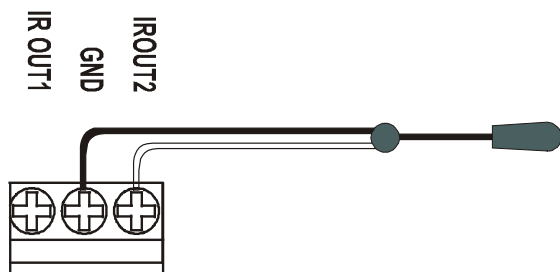


Figure 138: IR Emitter Wiring

Note: The dual IR emitter emits a weaker IR signal that may not be detected by some devices

¹ Using the Kramer 3.5mm to IR Emitter Control Cable (C-A35/IRE-10)

9.1.3 Creating Serial Range Commands

It is useful to write serial commands to a table if they include an adjustment range (for example, the volume level data ranges from 0 to 64). The table command table includes a list of indexed serial commands in sequence (the line number) that the controller should send out once reaching this line.

In the action lists, the configurator will be able to jump to a certain line (useful on device startup to specify the line to use as the startup state), move up one line and move down on line. These options make it very easy to control range based AV settings (volume, brightness and so on).

The three actions associated with the Table structure can be part of any action list - turn of a volume knob on an RC device or any button on an RC device or even a timer trigger. The Table also lets you link the volume LEDs to the range level.

For example, driver commands that define the volume level (from 0 to 64) can be inserted in the Table area in the Driver Manager window. The table is then included in a trigger that lets you change the volume level to a set value with each press of a button or turn of the knob (for digital audio).

To create a Command Table:

1. In the driver manager, define the Vendor, Device and Revision:

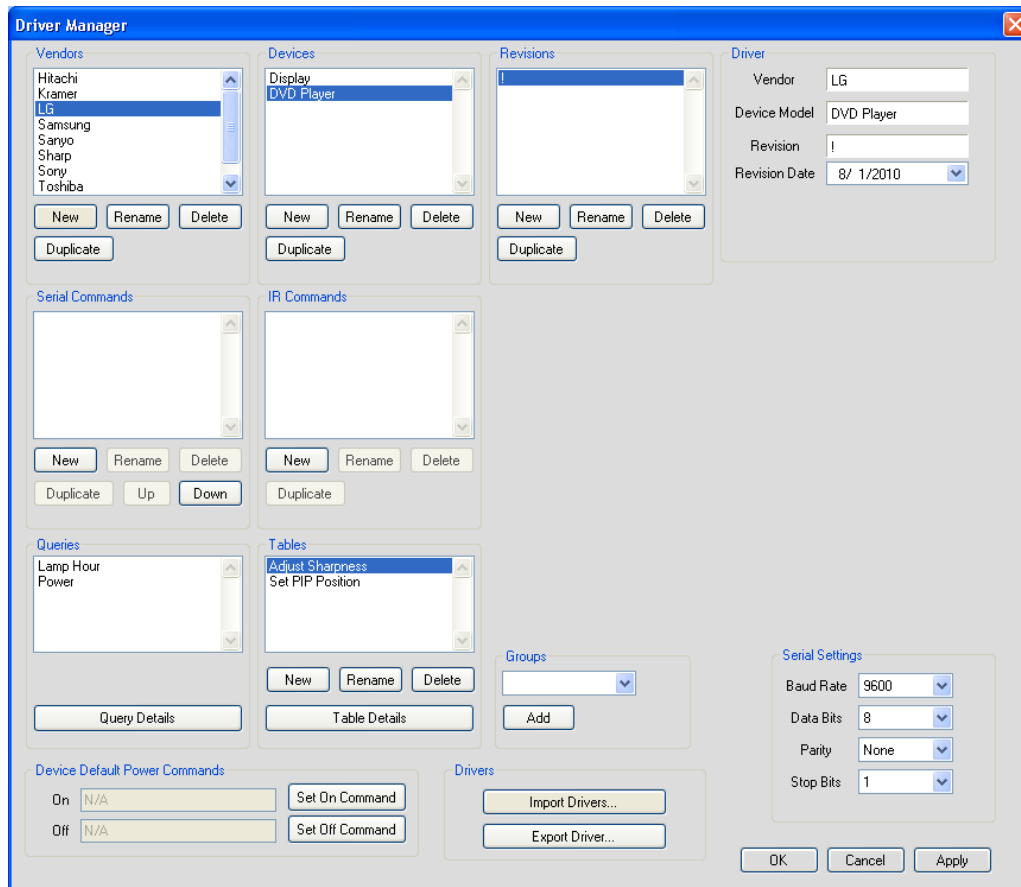


Figure 139: Defining a New Vendor, Device and Revision

2. Define a new command table name (the name should not include spaces):

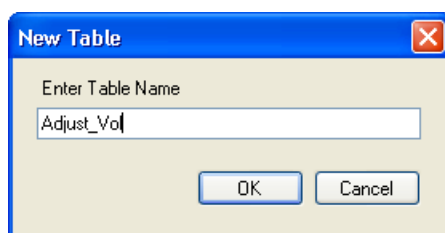


Figure 140: Set the New Command Table Name

3. Click OK.



Figure 141: The New Command Table Name

4. Click the Table Details button:

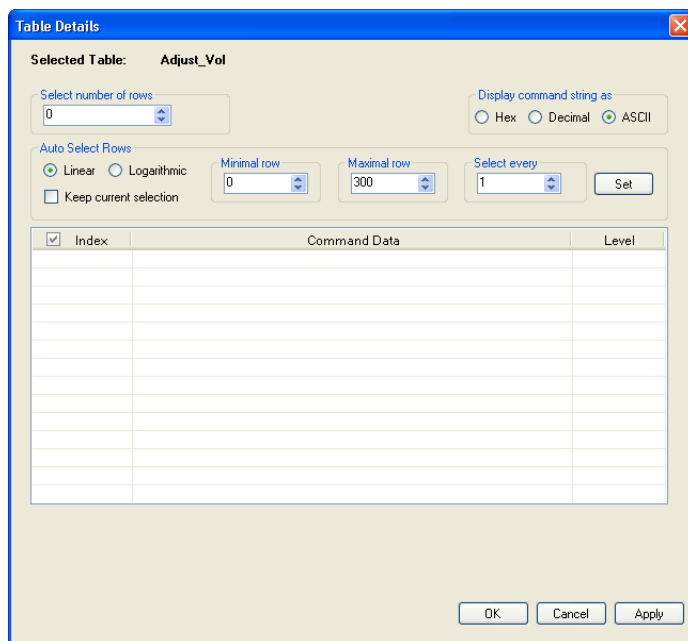


Figure 142: The Table Details Window

The Driver Table window lets you:

- Select the number of commands (rows) in the table (up to 300)
- Write and display the command string in Hex, Decimal or ASCII formats
- Auto Select the relevant rows
- Set the LED Level

To write commands to the table:

1. Select the number of rows you need (for the volume adjustment example, 14 rows are recommended):

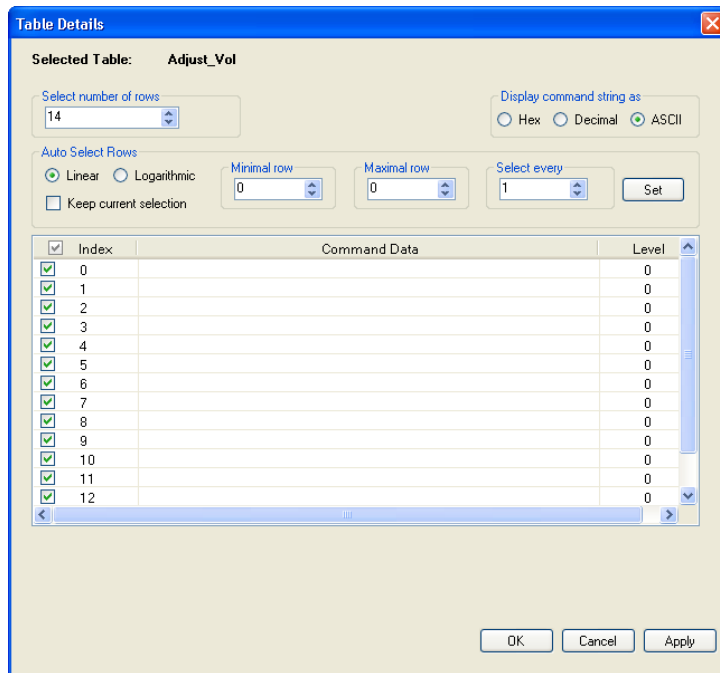


Figure 143: Setting the Number of Command Rows

You can change the number of rows at any time.

2. Enter the command data according to the protocol:

For example, a certain LCD Display command format is:

[Command1][Command2][][Set ID][][Data][CR]

Data ranges from 0 to 64.

The specific command for the Volume Control (for a Data value of 35) is:

[k][f][][Set ID][][Data][Cr]: "kf 1 ",0x35,0x0D.

3. Click the Command Data area and write the command to the Driver Table:

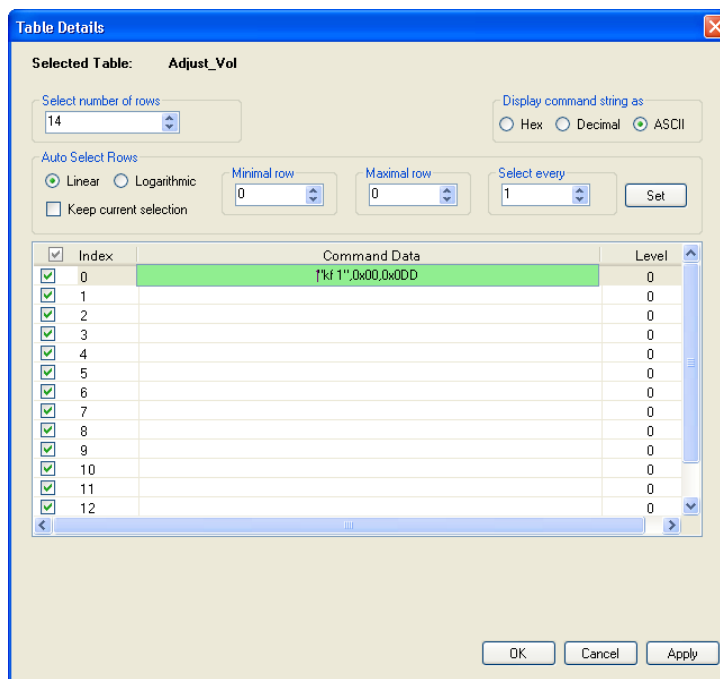


Figure 144: Entering a command

4. Add the following commands.

If the data range in this example is from 0 to 64, you can gradually change the data in steps¹ (for example, 0, 5, 10, 15 and so on):

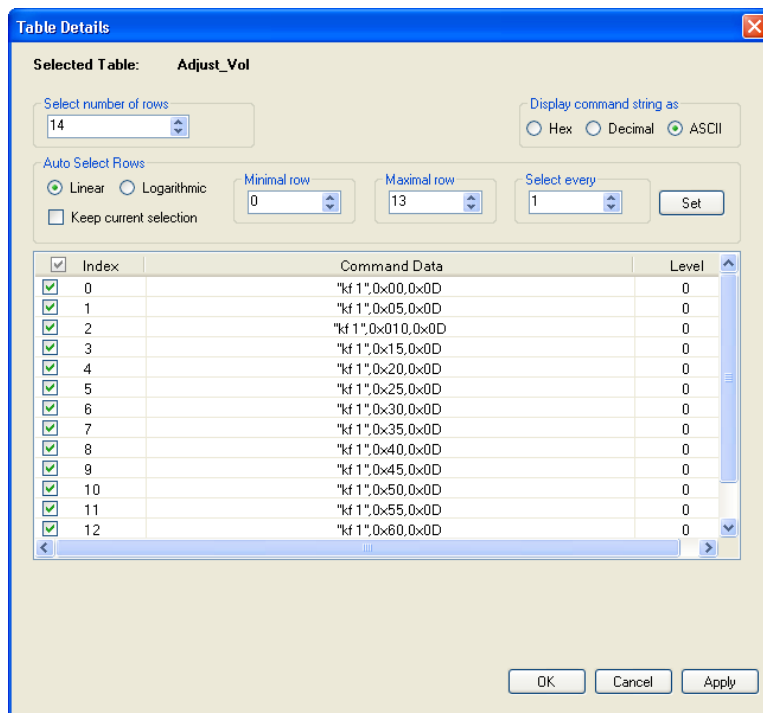


Figure 145: Writing the Commands

You can now enable or disable specific commands, as needed (for example to set the rate of increase or decrease of the volume) by selecting which commands should be used when traveling UP/DN in the table with the relevant K-Config Action commands:

For example, select every 3 rows:

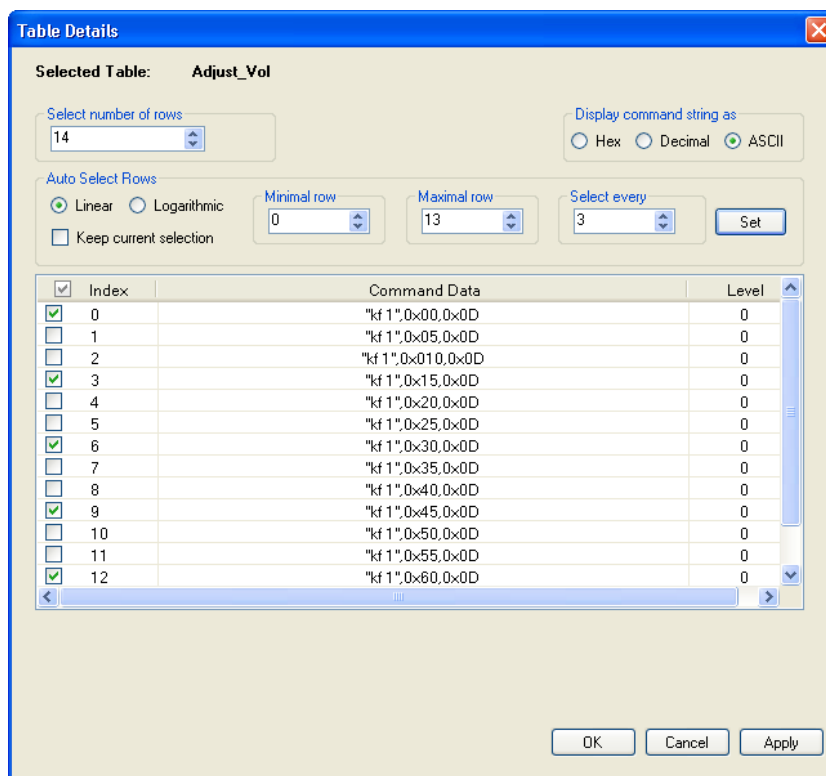


Figure 146: Selecting Every 3 Rows

¹ If you find that you have not selected the exact number of rows, you can add or delete a row at any time

You can also do this logarithmically, for example, to increase the volume at a fast rate in the lower range and slower in the higher range. Select the approximate number of steps you need (the table calculates the optimal number):

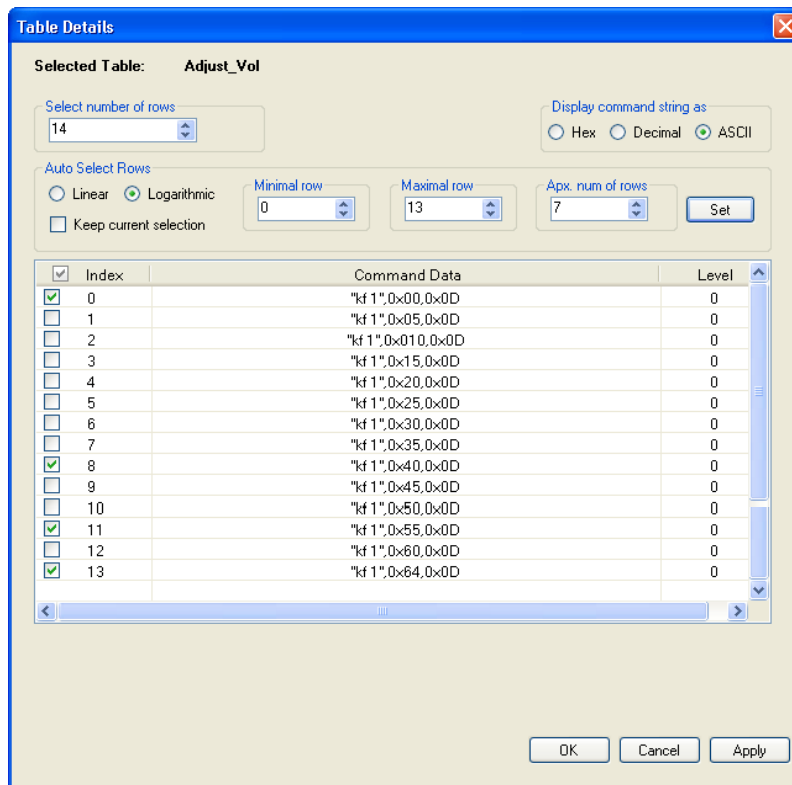


Figure 147: Logarithmic Row Selection

5. Set the LED Level:

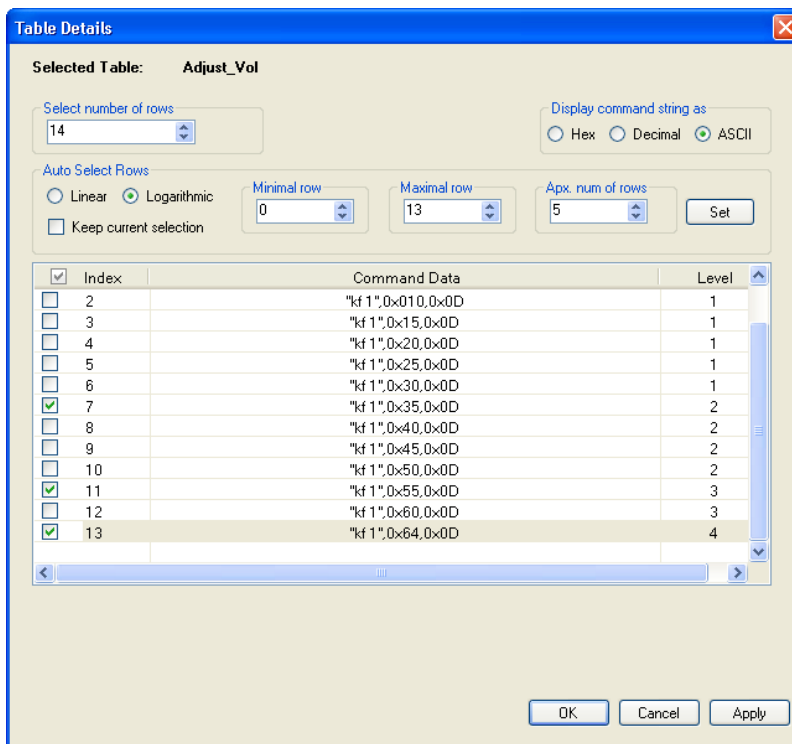


Figure 148: Setting the LED Levels

The Levels indicate the number of LEDs that light for each data command. You can set the LEDs to light only in sequence. For example, one LED will light for data commands up to 30. Two LEDs will light up to data command 50, and so on.

- When the table is complete, click OK.

You can create several sets of tables for different commands.

Once the table is ready, you can use the commands table to set the volume to an exact value in a trigger.

You can add actions to a trigger via the command table:

- Select the Port and Driver and then select the command table:

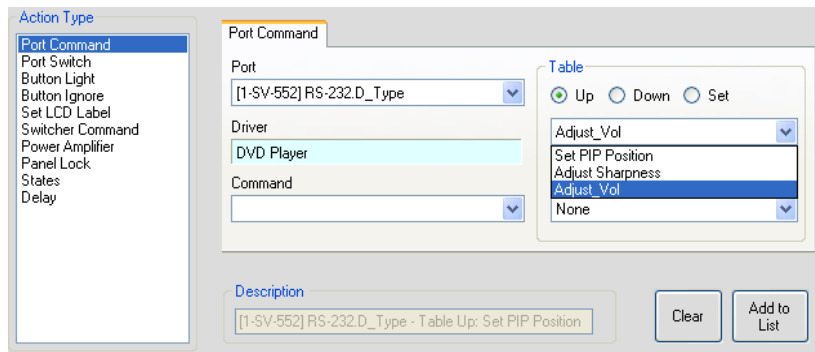


Figure 149: Adding Actions to a Trigger via the Command Table

- Set the behavior of the table commands to go gradually up, down, or set to a specific value. If you click Set, you can choose a specific volume level:

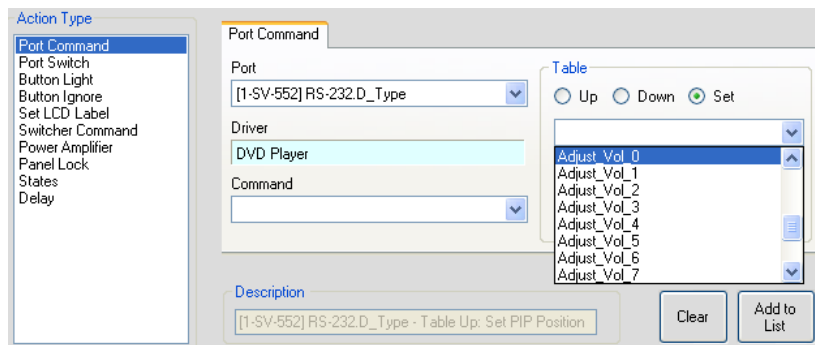


Figure 150: Setting a Specific Volume Level

- Select None if you do not want the LEDs to behave as defined in the commands table (see [Figure 148](#)), or select the RC device whose LEDs should behave as defined in the table:

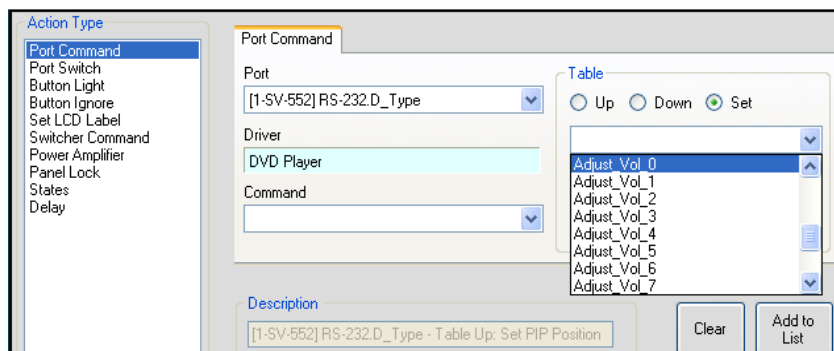


Figure 151: Selecting the LED Level Behavior

4. Add the Command table to the list

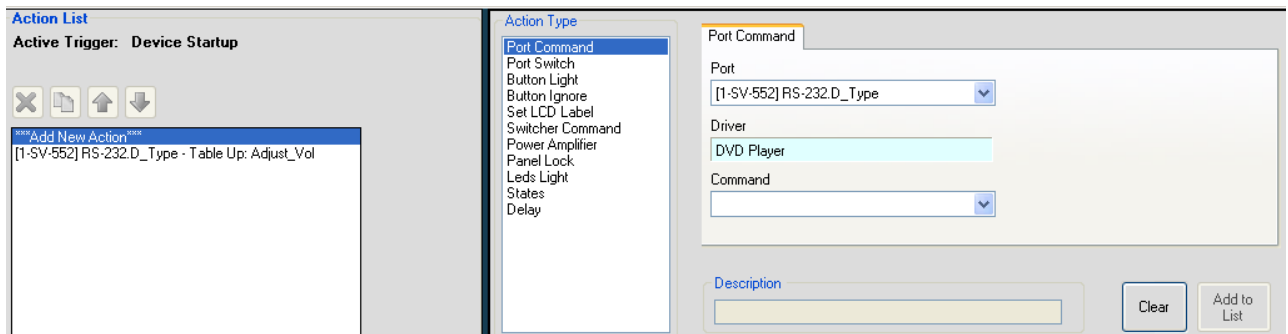


Figure 152: Adding the Commands Table to the List

You can create several other tables for different commands, or combine different command levels in the same table.

9.1.4 Kramer Machines Serial Commands

Kramer machine drivers are automatically set to create serial command tables. For example, when importing the Kramer **VP-437xl** driver, the Output_Volume serial command table appears automatically. When importing the **VP-725XLA** driver for example, several command tables appear automatically and are ready to use:

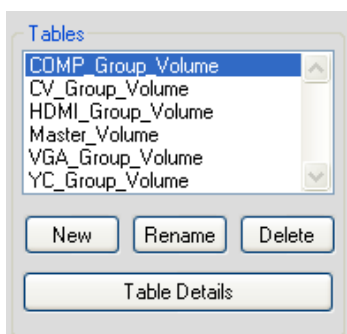
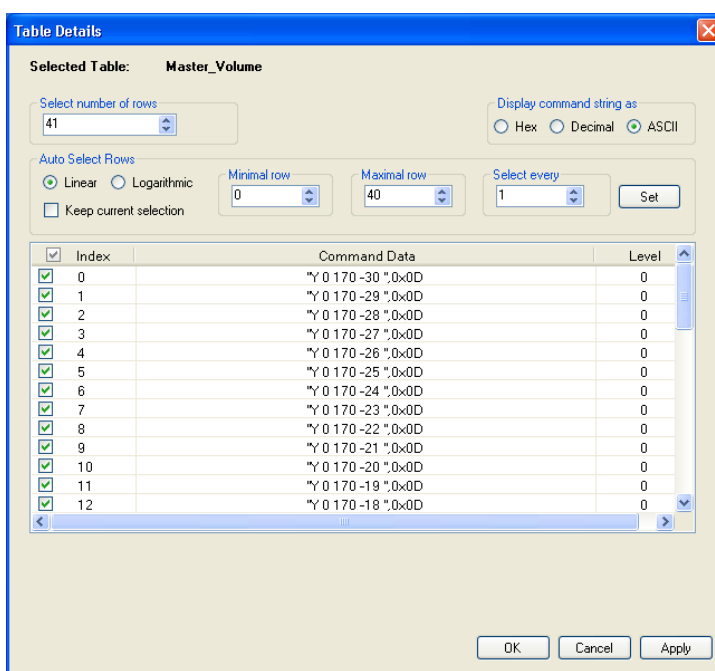


Figure 153: VP-725XLA Serial Command Tables

The Master_Volume table for example, includes 41 rows of commands:



You can select a group of commands¹, for example, from 0 to 4 in the Auto Select Rows area and click the Set button:

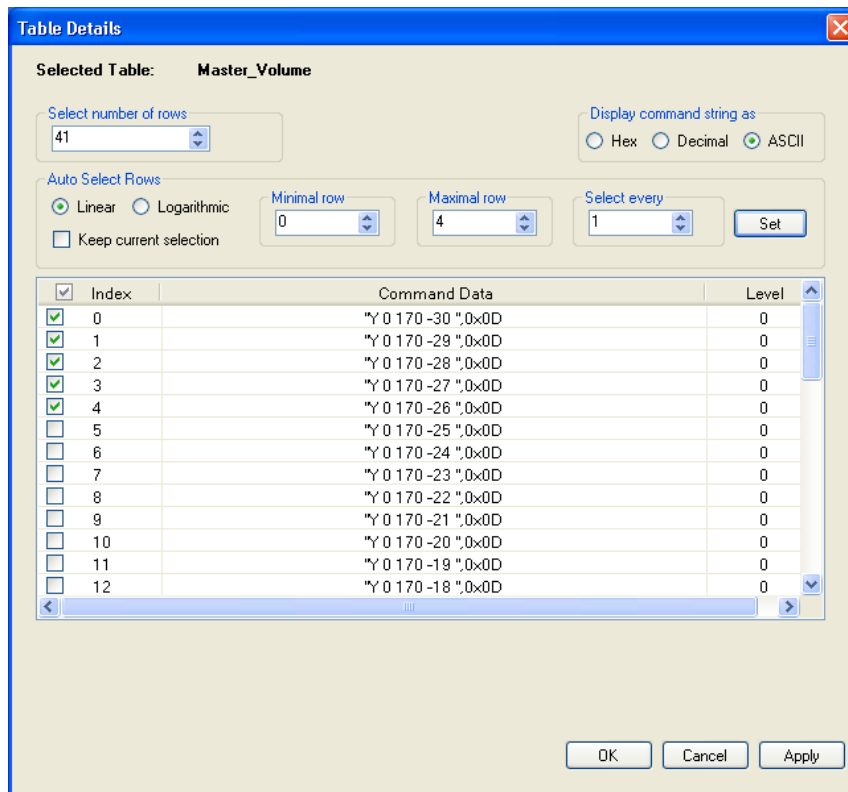


Figure 155: Selecting commands 0 to 4

You can add a second group of commands by checking the Keep current selection box and click Apply or OK to save settings:

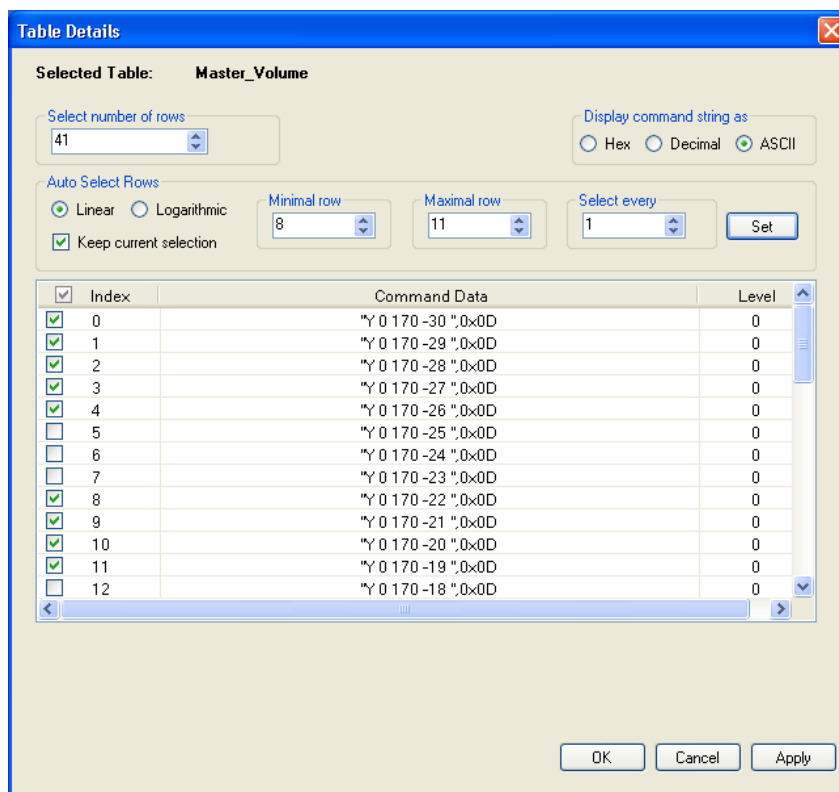


Figure 156: Selecting commands 0 to 4 and 8 to 11

¹ You can also select groups of commands in manually created tables

The selected list of commands will appear when setting commands in the port command area:

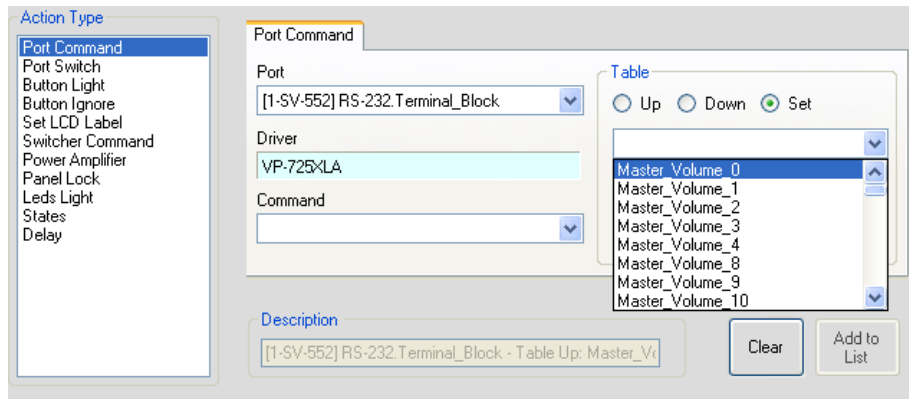


Figure 157: The Selecting commands in the Port Command Area

9.2 Defining Queries

Queries are used to define the Site-CTRL monitored operation parameters (such as the projector lamp hours and the power status of the main display device).

During normal operation, a query¹, derived from the protocol of the main display, is sent to the main display, regarding its lamp hours and/or power status. The main display sends the relevant serial command back to the Master RC which includes the parameter details; the Master RC interprets these commands according to the definition in the Query Details window and sends the real time status to the Site-CTRL and Web Access.

The list of queries appears in the Queries area in the Driver Manager:

- The Lamp Hour query monitors the lamp usage (in hours) of the main display (see [Section 9.2.1](#))
- The Power query monitors the power status of the main display (see [Section 9.2.2](#))

To open the Query Details window:

1. Select the desired Query (Lamp Hour or Power) in the Queries area (for example, select Lamp Hour):

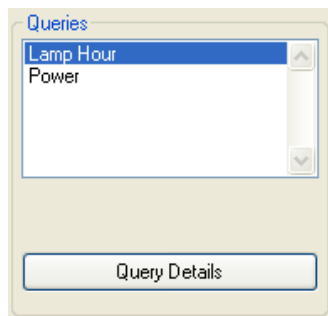


Figure 158: Queries Area

2. Click the Query Details button. The Query Details window appears:

¹ Or question

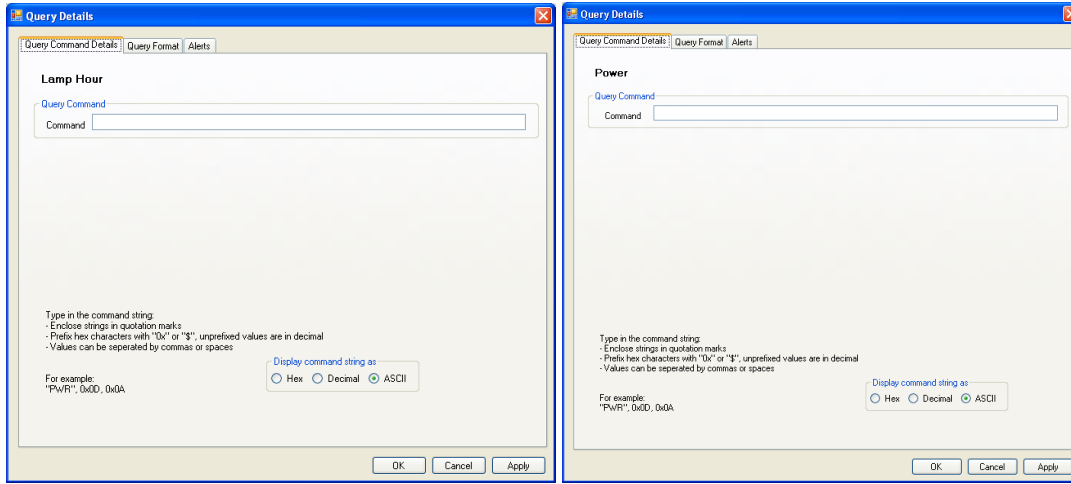


Figure 159: Query Command Details Windows (for Lamp Hours and Power, respectively)

3. Type the Query command that will be sent to the projector.
4. In the Query Format tab set the parameters to decode the projector response.
5. In the Alerts tab, enable the alerts.

The Query format tab is used to set the query response format, as defined in [Table 10](#).

Note that the first three fields in the query format tab (Begin, Terminated and Stop Value) always determine the bytes relevant to the response and the last three fields how to understand the response.

Table 10: Query Format Details

Feature	Function	Notes
<i>Begin</i>	Set the byte from which the response starts	To start with the first byte, select 0; to start from the second byte, select 1, and so on The number selected can be considered as the number of characters that should be ignored from the beginning of the response
<i>Terminated</i>	END_OF_RES : the data ends with the final character in the packet BY_CHAR : a certain character will define the end of the response (for example, "A") BY_LENGTH : the response will always have a set number of characters	
Stop Value	The stop value will be defined according to the type of termination selected: For END_OF_RES : N/A For BY_CHAR : the character that defines the end of the response For BY_LENGTH : the number of fixed characters that comprise the response	
<i>Answer Format:</i>	BINARY_HEX, ASCII, ASCII_Base_16 or BIT	Select according to the main display protocol format
<i>Endian Type/Bit Num</i>	Endian Type: select little or big, to define the response reading direction BIT number: when selecting the BIT answer format, set the BIT number (0,...,7)	Little Endian: the response value received from the byte with lowest value to the largest Big Endian: the response value received from the byte with highest value to the lowest
Response Units:	HOURS, MINUTES, SECONDS, USE_LOOK_UP_TABLE (relevant to the power query, see Section 9.2.2), or NONE (an arbitrary number without units)	For the Power query always select the USE_LOOK_UP_TABLE For the Lamp Hours query, select the correct time unit None is N/A

[Section 9.2.1](#) shows how to set the query details for the Lamp Hours query and [Section 9.2.2](#) shows how to set the query details for the Power query.

9.2.1 Setting the Query Details (for Lamp Hours)

The protocol of the main display determines the format in which the numerical value response to the Lamp hours query is received. This response can appear in one of three formats, as defined in [Table 11](#):

Table 11: Lamp Hour Query Response Formats

Main Display Response format	Example (for lamp hours)	In the Query Format Table:	Set Format to:
As a numerical string	"1979" or 0x31,0x39,0x37,0x39	Select the first three fields in the window to cut the relevant chars from the response	ASCII
As a hexadecimal numerical string	"7BB" or 0x37,0x42,0x42	Select the first three fields in the window to cut the relevant chars from the response	ASCII_16
As Byte values	0x07,0xBB (big Endian)	Select the first three fields in the window to cut the relevant bytes If the byte with the highest value is first, select the Endian byte to be Big Endian; if the lowest byte is first, select Little Endian	BINARY_HEX

The following example shows how to set a projector Lamp Hour query.

To open the Query Details window:

1. Select the Lamp Hour query in the Queries area:

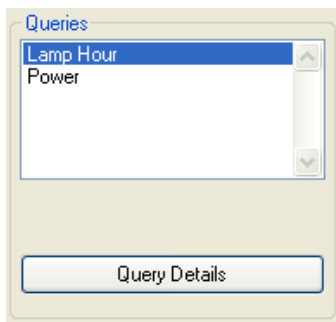


Figure 160: Queries Area

2. Click the Query Details button. The Query Details window appears:

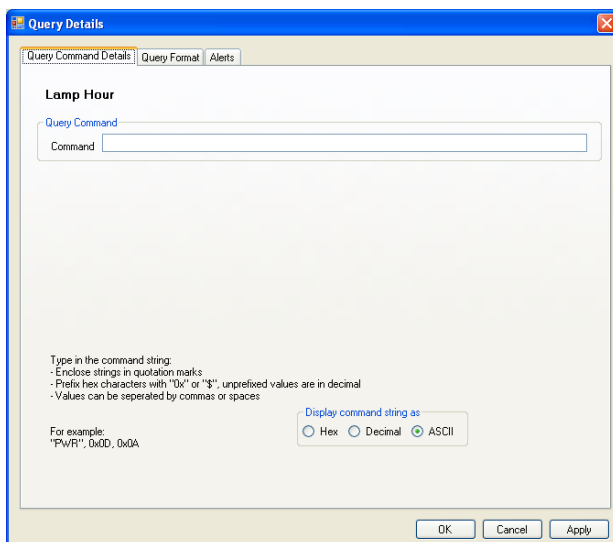


Figure 161: Query Details Window

3. In the Query Command Details tab, type the query command (for example, 03H 8CH 00H 00H 00H 8FH¹) that will be sent to the projector:

¹ The command written is specific to the projector used, and can be found in the protocol for that projector

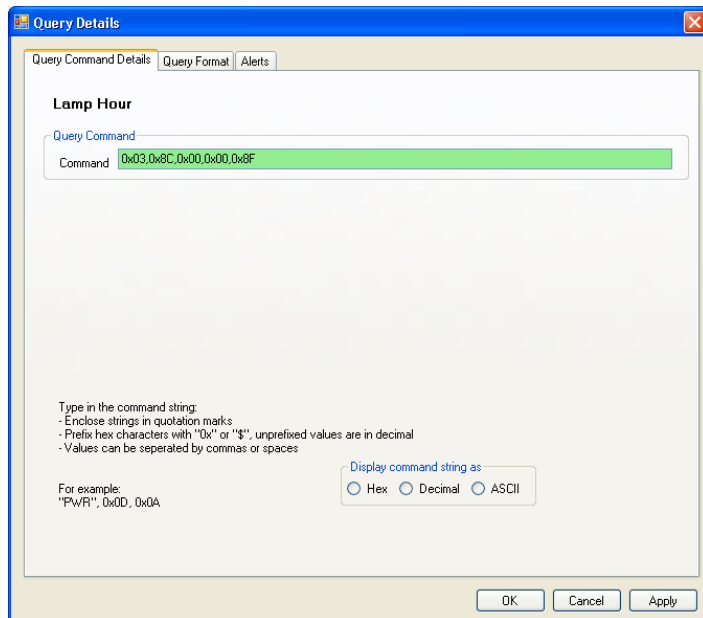


Figure 162: Writing the Query Command (Lamp Hours)

The Query Format is set to encode the projector response, as defined in [Table 12](#):

Table 12: Projector Query Response (Lamp Hours)

The projector response is: 23H 8CH 01H xxH 10H DATA01 ... DATA16
The lamp hours (in seconds) appears in: DATA01...DATA04, which corresponds to:

DATA01	DATA02	DATA03	DATA04	
30H	2AH	00H	00H	10800 Seconds

An actual response could be:
23H 8CH 01H 00H 10H 30H 2AH 00H 00H...

[Figure 163](#) shows the Query Format:

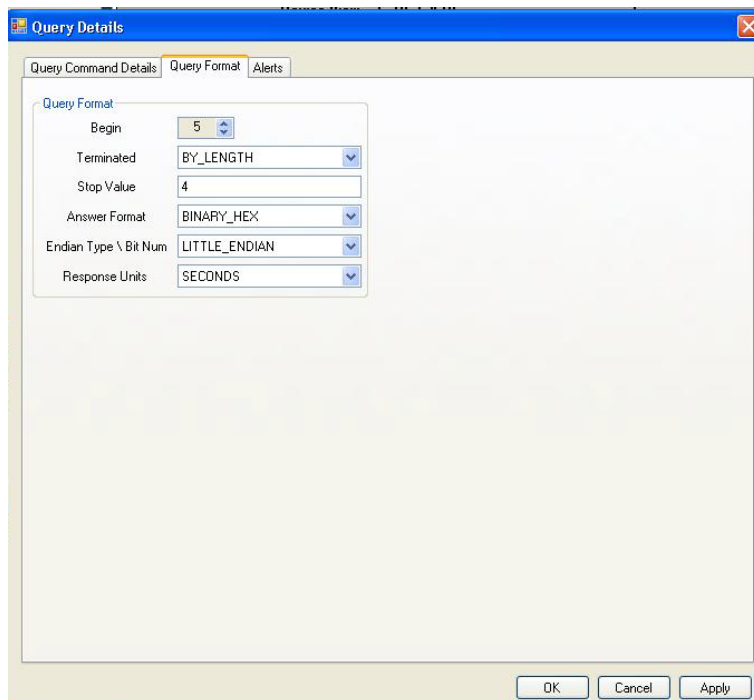


Figure 163: Query Format Window (Lamp Hours)

[Table 13](#) shows the query format details:

Table 13: Lamp Hour Query Format Details

Feature	Function	Lamp Hour Example
<i>Begin</i>	Set the byte from which the response starts	The lamp hour data starts with the byte in position 5, that is, the first four characters are ignored
<i>Terminated</i>	END_OF_RES : the data ends with the final character in the packet BY_CHAR : a certain character will define the end of the response (for example, "A") BY_LENGTH : the response will always have a set number of characters	By Length: the response will always include four bytes (a fixed length)
Stop Value	The stop value will be defined according to the type of termination selected: For END_OF_RES : N/A For BY_CHAR : the character that defines the end of the response For BY_LENGTH : the number of fixed characters that comprise the response	Four bytes only
<i>Answer Format:</i>	BINARY_HEX, ASCII, ASCII_Base_16 or BIT	BINARY_HEX
<i>Endian Type/ Bit Num</i>	Endian Type: select little or big, to define the response reading direction BIT number: when selecting the BIT answer format, set the BIT number	Little Endian: the response starts from the byte with lowest value to the largest
Response Units:	HOURS, MINUTES, SECONDS, USE_LOOK_UP_TABLE (relevant to the power query, see Section 9.2.2), or NONE (an arbitrary number without units, not relevant to lamp hours)	SECONDS: the lamp hours will appear in seconds

- In the Alerts tab, check Alert Enabled, to let the room controller continuously monitor the lamp hours.
- In the Alerts tab, set the alert values, see [Figure 164](#).
You can find the Max Lamp Hour value in the projector's manual.
The warning and critical values are set according to the control room requirements.
In this example, the projector maximum lamp hours are 3000 hours.

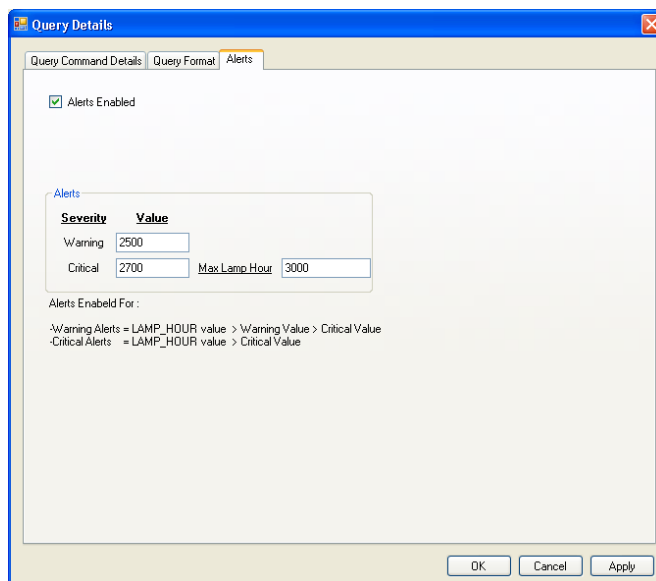


Figure 164: Alerts Window (Lamp Hours)

9.2.2 Setting the Power Query

The protocol of the main display determines the format in which the numerical value response to the Power query is received. This response can appear in one of three formats, as defined in [Table 14](#):

Table 14: Power Query Response Formats

Main Display Response Format	Example	In the Query Format Table:	Set Format to:
As a string	"PWR OFF" "PWR ON"	Select the first three fields in the window to cut the relevant chars from the response Set Response Unit to USE_LOOK_UP_TABLE Type the response string command in the Query Command Details between quotation marks	ASCII
As Byte values	See Table 15	Select the first three fields in the window to get the relevant bytes (selecting the bytes that change between answers is sufficient) Set Response Unit to USE_LOOK_UP_TABLE Type the response bytes in the Query Command Details as a series of numbers (hex/decimal) separated by commas	BINARY_HEX
Two relevant states answer the query, that are differed by one bit within the byte	Off = 0x45,0x83 On = 0x45,0x82	Select the relevant byte in the first field; select terminated BY_LENGTH and Stop Value 1 Set Response Unit to USE_LOOK_UP_TABLE Insert values of 0 and 1 in the Expected Result Table and choose the relevant Status for each value	ASCII_16

In the following example, the projector power status alerts are set.

1. Select the Power Query.
2. Click the Query Details button.
3. In the Query Command Details tab, write the query command (for example, 00H 85H 00H 00H 01H 01H 87H ¹) that will be sent to the projector:

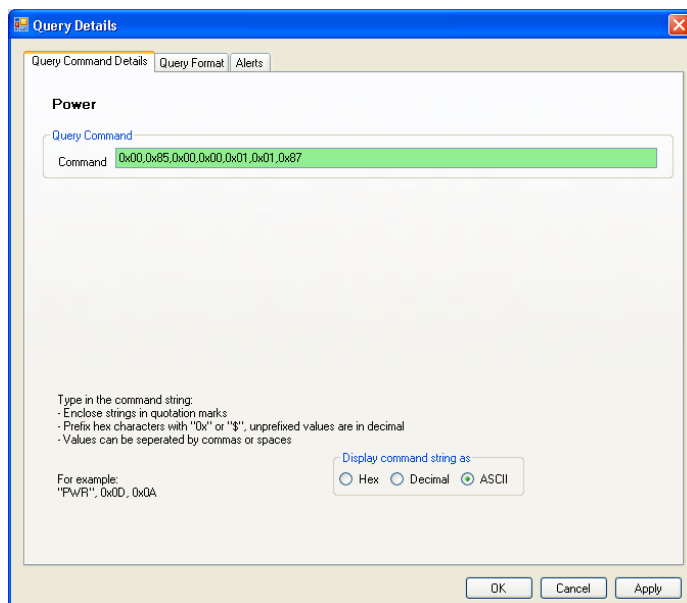


Figure 165: Writing the Query Command (Power)

¹ The command written is specific to the projector used, and can be found in the protocol for that projector

The Query Format is set to encode the projector response, as defined in [Table 15](#):

Table 15: Projector Query Response (Power)

The projector response is: 20H 85H 01H xxH 10H DATA01 ... DATA16 The projector status of operation appears in DATA06:				
DATA06:	00H	04H	05H	06H
	Idling	Power On	Cooling	Idling (error occurrence)
An actual response could be: 20H 85H 01H 00H 10H 00H 01H 00H 00H 00H 00H 04H FFH FFH FFH FFH				

4. In the Query Format tab, set the query format, see [Figure 166](#):

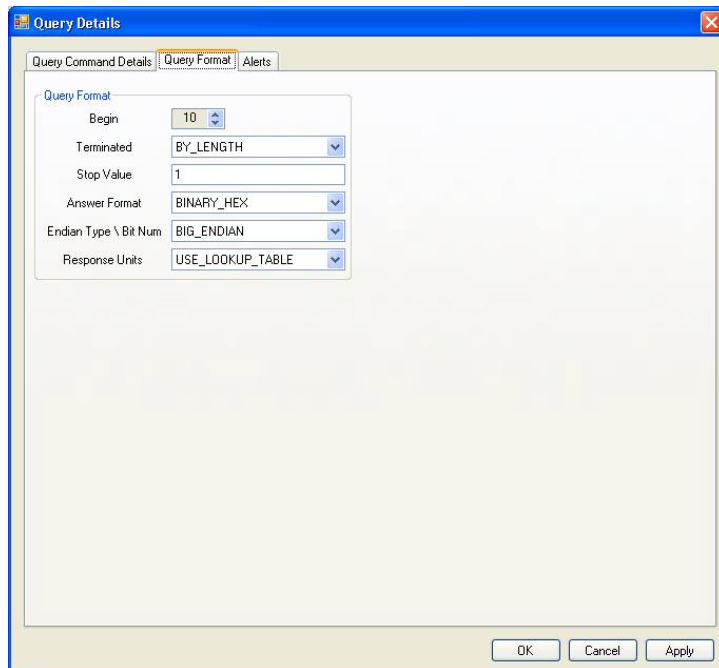


Figure 166: Query Format Window (Power)

5. In the Query Command Details tab, fill in the look up table (the Expected Result Table in the Query Command Details tab).
The lookup table lets you match a command string (from the projector protocol) to a projector state¹ and assign a status that will appear in Site-CTRL and the Web pages.
The example in [Figure 167](#) shows, for example, that the command 0x04 matches the On state and that means that the status is OK; the command 0x06 matches an Error state and the Error status is assigned and will appear in Site-CTRL and the Web pages.

¹ On and STBY states are built-in and you can add other states as required (for example, Cooling, Error and so on)

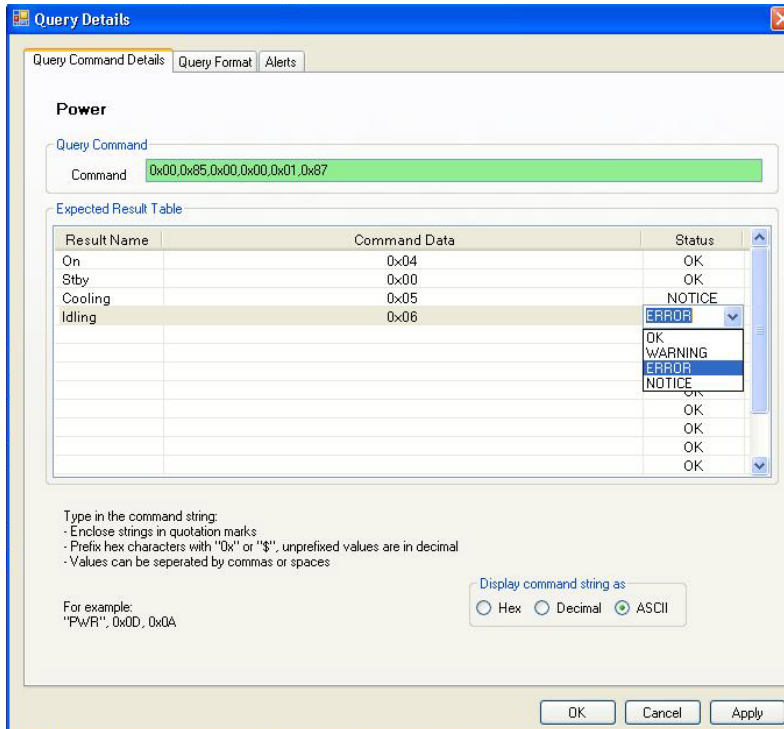


Figure 167: Expected Result Table (Power)

6. In the Alerts tab, check Alert Enabled, to let the room controller continuously monitor the power status.

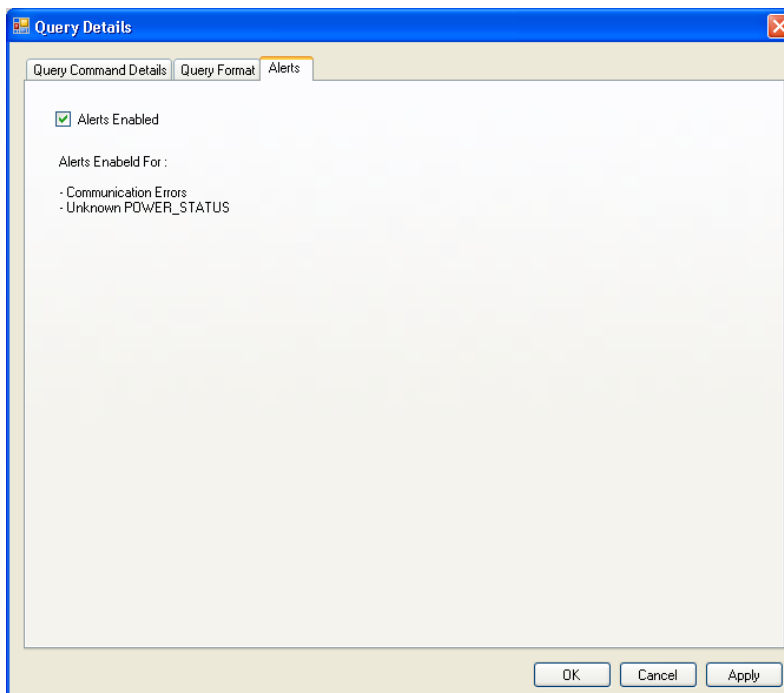


Figure 168: Alerts Window (Power)

10 The Kramer K-Config Menus

This section describes the Kramer **K-Config** menus.

10.1 The File Menu

[Figure 169](#) illustrates the File menu and [Table 16](#) defines it:

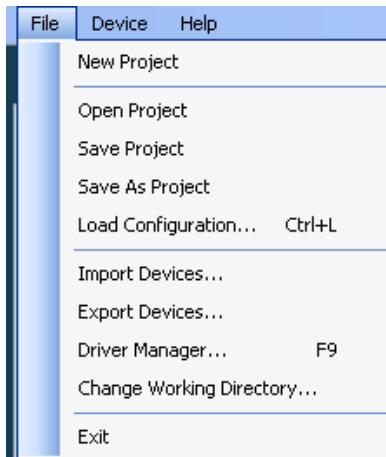


Figure 169: The File Menu

Table 16: File Menu Features

Menu Command	Function
New Project ¹	Click to create a new setup, see Section 10.1.1 ² .
Open Project	Open an existing setup
Save Project	Click to save the current setup
Save as Project	Save the setup under a different name
Load Configuration ³ ...	Click to load a saved configuration.
Import Devices...	Click to import a new or existing device ⁴
Export Device...	Click to export a device ⁵
Driver Manager ...	Click to open the Driver Manager window
Change Working Directory...	Click to set the new working directory ⁶ .
Exit	Click to exit the program.

10.1.1 Starting a New Project

To start a new project, do the following:

1. Click the New Project button in the file menu, the following window appears:

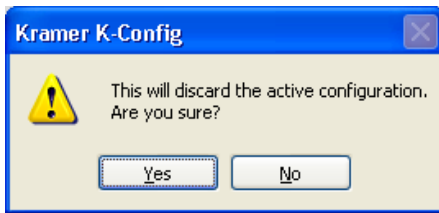


Figure 170: New Project Warning

2. The Save as Window appears to let you save the new project under a new name:

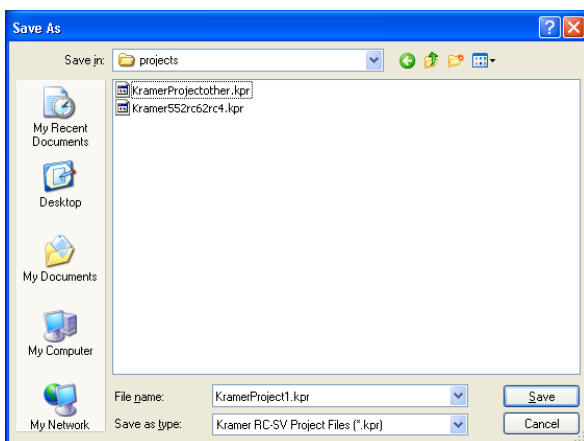


Figure 171: Project Save as Window

- 1 A Project includes the configuration and the drivers
- 2 This will discard the active configuration
- 3 A configuration does not include the drivers
- 4 To import one or several new and/or revised device layouts to K-Config, virtual device layouts created in other K-Config installations
- 5 To export virtual device layouts to other K-Config installations
- 6 The working directory can be changed at any time

10.1.2 Saving a Project

When saving, writing or opening a new project, follow these important rules:

- In order to make uploading the project as stable as possible, projects are saved automatically before writing a configuration to a device. This behavior may overwrite the existing project.
If you want to keep the previous configuration as well, be sure to rename the project before writing it to the device
- Always change a project name via “Save as” in the software. If the project name is changed outside the K-Config software (for example, via the Rename function in a Windows folder view), it will not open correctly in K-Config
- When quitting K-Config, the open project will not be saved automatically. If needed, save the open project before quitting K-Config
- When opening a new project, you will be asked to name it by saving it. The default project name that appears in the “Save as” window will be the name of the currently open Project. It is recommended to change the name in the filename, otherwise the new project will overwrite the current project

10.1.3 Import/Export Devices

K-Config lets you import or export device templates via the import/Export Device feature in the File menu.

This feature allows you to import a newly released control device to the Control Room list (Master/Auxiliary) without having to upgrade the K-Config. You can also share virtual device layouts that were created in K-Config by exporting and importing them to a different room installation.

To Import a device:

1. Select Import Devices... in the File menu, and select the device (or devices) you want to import¹.

The following window appears:

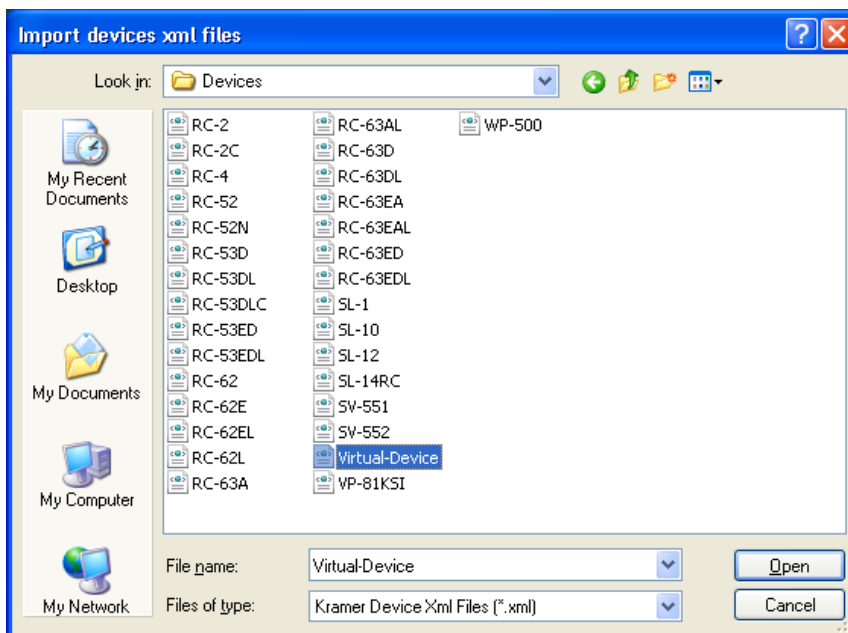
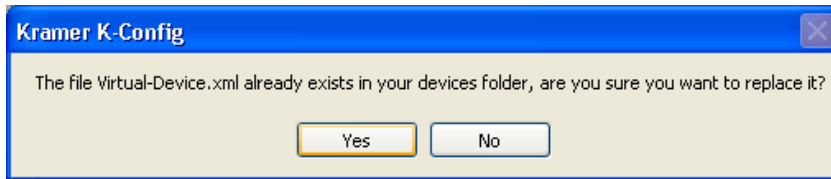


Figure 172: Import Devices

¹ Only Kramer xml files will appear on the list

2. Click Open.

If the device already exists on your list, you will get the following message:



Otherwise the device will be added to the list.

To export a device:

1. Select Export Devices... in the File menu, and select the device (or devices) you want to export.
The following window appears:

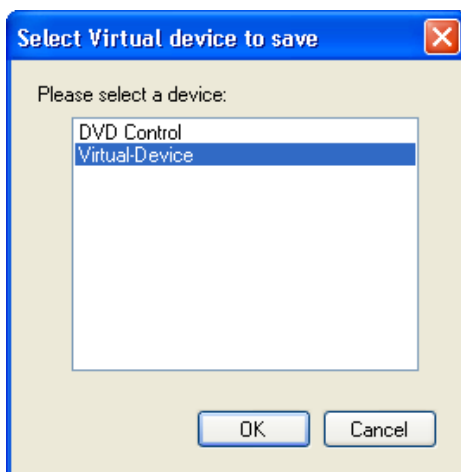


Figure 173: Select Virtual Device to Save

2. Click OK.

The following window appears:

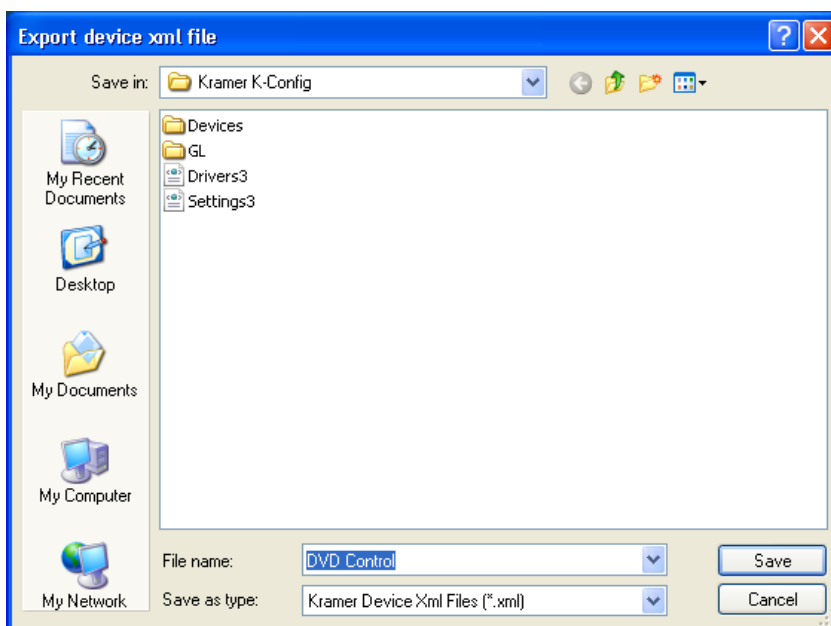


Figure 174: Export Device xml File

You can also export a virtual device by right clicking it and selecting Export Device Xml:

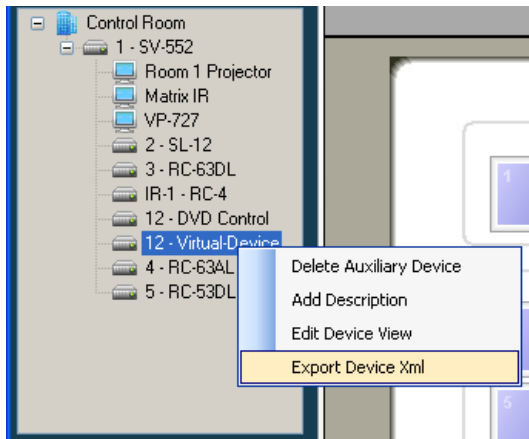


Figure 175: Export Device xml

10.2 The Device Menu

Figure 176 illustrates the Device menu and Table 17 defines it:

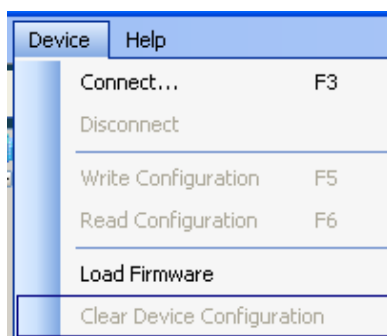


Figure 176: The Device Menu

Table 17: Device Menu Features

Menu Command	Function
Connect...	Click to connect to a device via an IP number, a USB connector or a serial port (see Figure 178)
Disconnect	Click to disconnect the device
Write Configuration ¹	Writes the configuration to the device
Read Configuration ¹	Reads the configuration from the device
Load Firmware	Load file for firmware upgrade.
Clear Device Configuration	Removes the configuration from the device

10.2.1 Load Firmware

Warning: Before uploading a new firmware to a device, make certain that the firmware you have selected matches the connected device. In some cases, it will be possible to upload firmware that does not match a device, resulting in inoperability of the device.

Prior to firmware upgrade, disconnect the device from Site-CTRL and Web Access.

To load new firmware:

1. Check for the latest firmware at: <http://www.kramerelectronics.com/support/downloads.asp>
2. From the Device menu select Load Firmware.

The Load Firmware Upgrade window appears:

¹ Active only when a device is connected

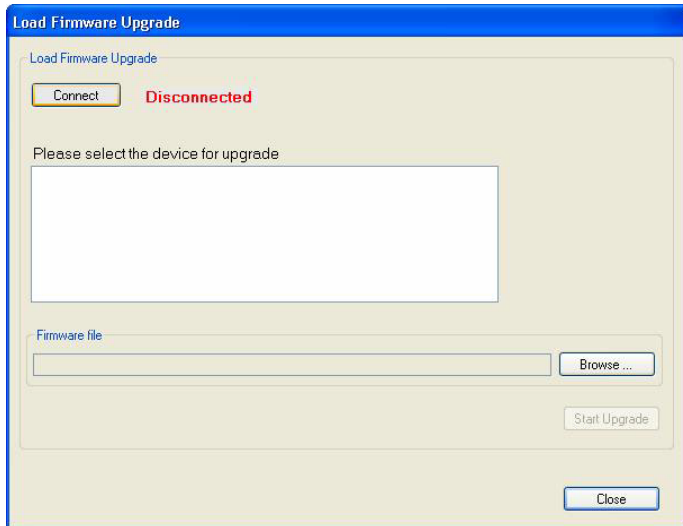


Figure 177: Load Firmware Upgrade Window (SV-551)

3. Click the Connect button.
The Connect Window appears:

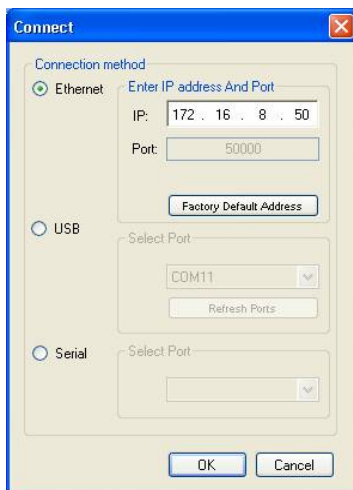


Figure 178: Connect Window

4. Choose the connection method according to the cable connection you have made between the PC and your product.
5. Click OK.
6. Select the device to upgrade from the list box¹.
7. Click the Browse button to find the firmware file.

¹ When selecting a room controller device such as RC-6x, you have to select the connection method: Direct connection or Connection via SV-551 via K-NET

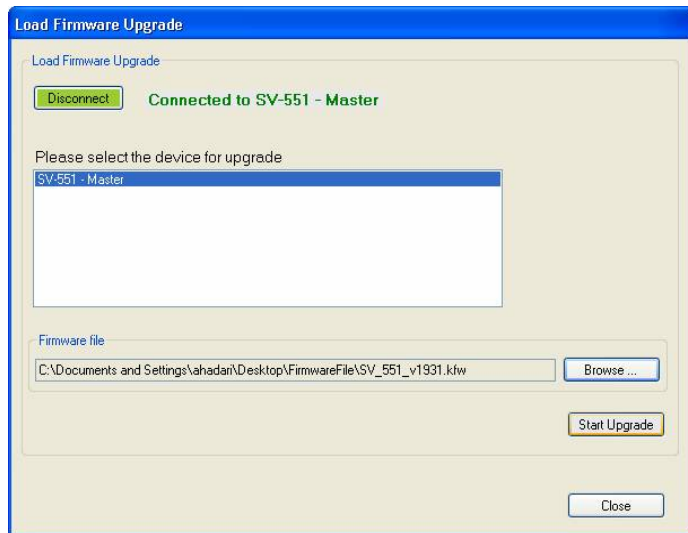


Figure 179: Load Firmware Upgrade Window

8. Click Start Upgrade.
9. Upon completion, open the Device Settings Tab to make sure the firmware was upgraded¹.

10.3 The Help Menu

Figure 180 illustrates the Help menu and Table 18 defines it:

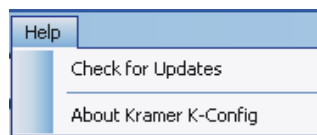


Figure 180: The Help Menu

Table 18: Help Menu Features

Menu Command	Function
Check for updates	Check on the Kramer Electronics Web site for software updates.
About Kramer K-Config	Shows the current software version.

11 Connecting the RC-6X Series Room Controller as a Standalone Device

You can configure the Room Controller to be used as a standalone device. To do this you have to connect the Room controller directly to your PC via the USB connector.

To define an RC-6X as a Master device:

1. From the Device Menu, click Connect....
 2. Select the connection method to be USB, select the port and click OK.
- The following warning appears:

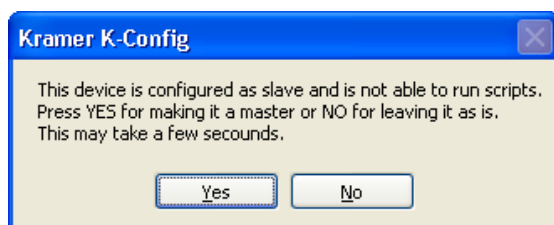


Figure 181: Transforming to the Standalone Configuration

3. Click Yes.

When in the standalone mode, you can write the actions directly to RC-6X by clicking the Write Configuration button.

To exit the standalone mode open the Device menu and select Set as Aux.

¹ If the firmware number remains the same, close the Device Properties windows, disconnect and then reconnect the device, and open the Device Properties window again to check the Firmware number

12 Connecting via the ETHERNET

You can connect the device (for example, the **SV-551**) via the Ethernet using a crossover cable (see [Section 12.1](#)) for direct connection to the PC, or a straight through cable (see [Section 12.2](#)) for connection via a network hub or network router.

12.1 Connecting the ETHERNET Port directly to a PC (Crossover Cable)

You can connect the Ethernet port of the RC device to the Ethernet port on your PC, via a crossover cable with RJ-45 connectors.

This type of connection is recommended for identification of the factory default IP Address of the RC device (192.168.1.39) during the initial configuration

After connecting the Ethernet port, configure your PC as follows:

1. Right-click the My Network Places icon on your desktop.
2. Select Properties.
3. Right-click Local Area Connection Properties.
4. Select Properties.
The Local Area Connection Properties window appears.
5. Select the Internet Protocol (TCP/IP) and click the Properties Button (see [Figure 182](#)).

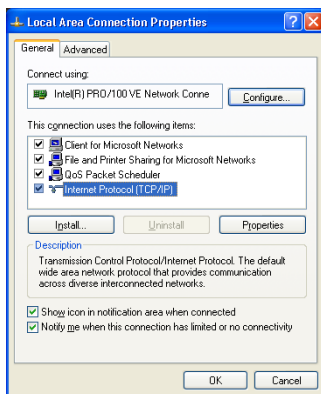


Figure 182: Local Area Connection Properties Window

6. Select Use the following IP Address, and fill in the details as shown in [Figure 183](#).
7. Click OK.

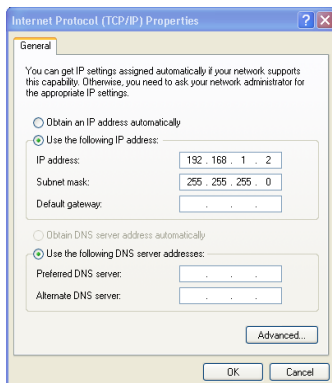


Figure 183: Internet Protocol (TCP/IP) Properties Window

12.2 Connecting the ETHERNET Port via a Network Hub (Straight-Through Cable)

You can connect the Ethernet port of the RC device to the Ethernet port on a network hub or network router, via a straight-through cable with RJ-45 connectors.